FIRE DOORS AND HARDWARE

FROM
SCHLAFER'S
APPLETON, WIS.

CATALOG No. A-85

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APPLETON, WIS.

Richar[illegible] Mfg. Co.

"A Hanger [illegible] that Slides."

AURORA, ILLINOIS, U.S.A.

RICHARDS WILCOX R&W CO. AURORA TRADE MARK

UNDERWRITERS INSPECTED HARDWARE LABORATORIES

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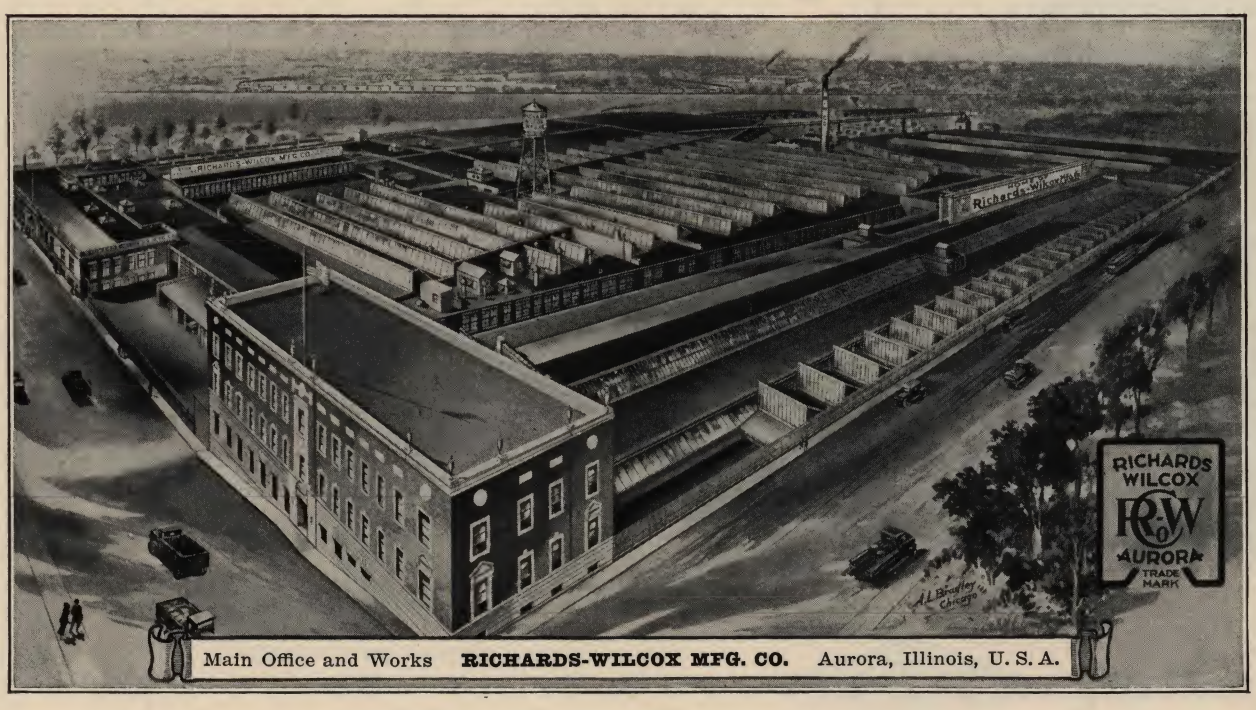
Fire Doors and Fire Door Hardware



Catalog No. A-85

Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"

AURORA, ILLINOIS, U.S.A.

Branches: New York Chicago Boston Philadelphia Cleveland Cincinnati Indianapolis St. Louis New Orleans Des Moines Minneapolis Kansas City Los Angeles San Francisco Omaha Seattle Detroit Atlanta Richards-Wilcox Canadian Co., Ltd., London, Ont. Montreal Winnipeg

Foreword

Every year the nation celebrates Fire Prevention Week, during which time great emphasis is placed on the appalling toll the Fire Demon claims on life and property.

One of the most important and effective means of preventing the spread of fires after they have started is the use of Approved Fire Doors and Automatic Hardware. This equipment is always on the job, day and night, year in and year out, waiting for the opportunity to perform its duty in time of need. Sometimes it is several years after installation is made before they get a chance to demonstrate their value. In the meantime, however, they are paying for themselves by the savings they bring to the owner of the building in reduced Fire Insurance rates.

You can make every day Fire Prevention Day by installing R-W Fire Doors and Hardware in your plant. We make every type authorized by the Underwriters', and our Engineering Department freely offer their assistance in helping you solve any problems you may have.

Richards-Wilcox Mfg. Co.
AURORA, ILLINOIS

Recommended Preferences in the use of Richards-Wilcox Fire Doors

While it is rather difficult to draw a sharp line which will govern the selection of a particular type of fire door because in many cases the personal judgment of the purchaser or the architect becomes a considerable factor, the following information concerning the different Richards-Wilcox fire doors should prove helpful.

All of our fire doors except the No. 446 two-ply tin clad fire door have the same Underwriters' rating; that is, they are acceptable for all fire locations. The No. 446 two-ply tin clad fire door does not carry the Underwriters' label for Class A opening, but the No. 446 three-ply tin clad door does. These doors are also approved by the Factory Mutual Laboratories.

FYE R-W ALL Fire Doors

R-W Nos. 347 and 447—See pages 235 and 237

1. Generally speaking, we would recommend the use of Nos. 447 and 347 FyeR-Wall corrugated sheet metal fire doors in locations where the door will be subject to rough usage, and where the door would be subject to conditions which might induce dry rot in a tin clad door. They are also well adapted to a building in which corrugated metal is used for other purposes. These doors are somewhat more difficult to install than a tin clad door because of the necessity of drilling holes in and making attachments to metal, but may be purchased from the factory with all holes drilled for hardware in advance, thus eliminating that difficulty.

The No. 347 and 447 doors are quite similar in construction, the principle difference is that the No. 347 door has a heavy exposed rolled steel angle as a framework, while the design of the No. 447 door provides for extending the galvanized sheet metal over the framework of the door.

R-W No. 446 Tin Clad Fire Doors

(See pages 238 and 239)

2. R-W No. 446 tin clad door is perhaps the oldest type of fire door and is very easily installed with ordinary carpenters' tools. The door is more easily damaged from rough usage than other fire doors because of the thin tin metal covering and in favorable locations the wood core is subject to dry rot which is not easily discovered in the door.

FYE R-W ARD Fire Door

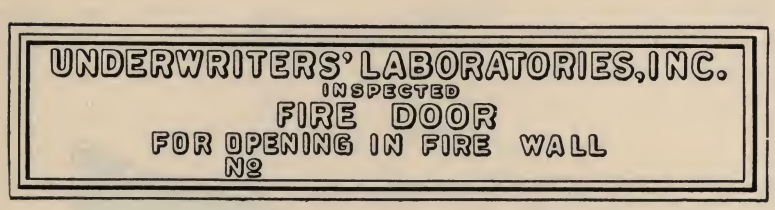
R-W No. 647—See pages 232 and 233

3. The No. 647 FyeR-Ward door should be specified in locations where appearance is of some importance. It is the best appearing of all of the fire doors and lends itself easily to being painted to look like a flush slab type wood door. This door is especially adapted to locations where swinging doors are required because it is only $1\frac{13}{16}$" thick, as all other fire doors (excepting the two-ply No. 446 door) are approximately $2\frac{1}{2}$" thick. The door is very durable and very substantial. This door can also be ordered from the factory with holes drilled for attaching the hardware.

4. The No. 447 FyeR-Wall corrugated sheet metal fire door has been approved by the Underwriters' since 1928, and the No. 647 FyeR-Ward flush surface fire door has been approved by the Underwriters' since 1934. This latter type of door, however, is meeting with more and more favor constantly on account of its superiority in appearance, and its thinness as compared with other fire doors.

Approved Labeled Fire Doors

Inspected by the Underwriters' Laboratories, Inc., Sponsored by The National Board of Fire Underwriters. Also Approved by Factory Mutual Laboratories.



Embossed Brass Label

Data Concerning Fire Doors

Openings are classified as A, B, C, D, E, and F in accordance with the character and location of the wall in which they are situated.

CLASS A openings are in division walls separating building or a single building into fire sections and devices protecting such openings are generally required on both sides of the wall. No glass is permitted.

CLASS B openings are in enclosures to vertical communications through buildings (stairs, elevators, hatchways, etc.), and devices protecting such openings are required on one side of the wall only and may contain a glass vision panel not to exceed 100 square inches per opening with neither height nor width exceeding 12 inches.

CLASS C openings are in corridor and room partitions and devices protecting such openings are required on one side of the wall only and may contain one or more wire glass panels, not exceeding 1296 square inches in area with neither height nor width exceeding 54 inches. If desired each sash or panel can be divided into several lights not exceeding 400 square inches in area each.

CLASS D openings are in exterior walls subject to severe fire exposure, no glass permitted.

CLASS E openings are in exterior walls subject to moderate fire exposure, and may contain one or more wired glass panels, not exceeding 720 square inches in area, height not exceeding 54 inches and width not exceeding 48 inches. If desired each sash can be divided into several lights not exceeding 400 square inches in area each.

CLASS F openings are in exterior walls subject to light fire exposure, and may contain one or more wired glass panels, not exceeding 720 square inches in area, height not exceeding 54 inches and width not exceeding 48 inches. If desired each sash can be divided into several lights not exceeding 400 square inches in area each.

No glass is permitted in shutters.

Where Labels Can Be Used

We are authorized to label single sliding doors, single swinging doors, pairs of swinging doors and vertical lift doors. It is not permissible to label sliding doors in pairs. The regular size of doorways to which we can apply labels are doorways for single sliding doors up to 120 square feet with neither dimension exceeding 12′ 0″; swing doors in pairs for openings up to 120 square feet in area not exceeding 12′ 0″ in height or 10′ 0″ in width; single swinging doors for openings not exceeding 12′ 0″ in height and 6′ 0″ in width; or vertical doors for openings not exceeding 80 square feet in area, with neither height nor width exceeding 10 feet.

"Oversize" Door Labels

In addition to the fire doors bearing standard labels for openings as listed above, we are authorized by the Underwriters' Laboratories to apply "Oversize" door labels to doors in larger sizes within certain limitations. See description of each type of door for oversize limit.

Oversize door labels affixed to doors do not indicate that such doors are capable of furnishing standard fire protection, but indicate only that the doors conform to the construction requirements. Inspection bureaus having jurisdiction should be consulted in regard to the acceptability of oversize doors in each location.

Sectional Doors

The maximum sizes of doors which can be shipped at regular freight rates are as follows:

7′ x 22′; 7′-6″ x 14′; 7′-10″ x 12′-4″; 8′-2″ x 10′-4″.

Doors larger than the foregoing take special freight rates, but where doors are to cover large openings, they may be built in sections not exceeding the foregoing sizes given, to be bolted together in the field. Generally sectional doors can be kept within the limits of standard freight rates.

Caution

Approved and labeled fire doors give satisfactory protection and maximum insurance premium credits are effective only when approved and labeled doors are mounted with approved and labeled hardware.

Do not take a chance on a fire door made up by someone not qualified to provide a door that will be approved after it is installed. We have known many cases where customers have tried to get by without a labeled door, even though they equipped it with standard approved hardware, and they have been forced to take down the door, replace it with an approved door, and rehang the hardware—**a very costly operation.** All this trouble and expense can be avoided by making sure both labeled doors and labeled hardware are ordered in the first place.

Etched Brass Label

Approved Fire Doors

How to Figure the Area of Fire Doors

The decimal equivalents of feet and inches given in table below apply to height as well as width. For instance, a door 4′8″ wide by 6′3″ high reduced in terms of decimal equivalents would be 4.667 by 6.250.

Flush Doors

Multiply width of opening in feet by height of opening in feet. A door 3′6″ (3.5) by 6′8″ (6.667) high would contain 23.33 sq. ft.

Square Top Lap Doors

Obtain actual size of door by adding 8 inches to width and 4 inches to height of **opening,** then multiply. For example; a square top lap door for opening 4′0″ wide by 6′0″ high would actually be 4′8″ (4.667) by 6′4″ (6.333) and would contain 29.56 sq. ft.

Incline Top Lap Doors

First, obtain width of door by adding 8 inches to width of **opening,** and obtain height of low side of door by adding 4 inches to height of opening, then multiply. To this result add the number of feet shown opposite the "Door Width" in third column of the table below. For example, an incline top lap door for opening 5′0″ wide by 6′8″ high is desired. Adding 8 inches to width of opening (5′0″) would be 5′8″. Adding 4 inches to height of **opening** (6′8″) for low side of door would be 7 ft. Multiplying 5′8″ (5.667) by 7 would give 39.669 sq. ft. to which must be added 2.007 (shown in third column opposite "Door Width," in this case 5′8″), making a total of 41.676 sq. ft.

Table for Computing the Area of Fire Doors

Door Width		Add for Incline Top Square Feet
Feet Inches	Feet in Decimals	
2- 0	2.000	.125
2- 1	2.083	.271
2- 2	2.167	.393
2- 3	2.250	.316
2- 4	2.333	.340
2- 5	2.417	.365
2- 6	2.500	.391
2- 7	2.583	.417
2- 8	2.667	.445
2- 9	2.750	.473
2-10	2.833	.502
2-11	2.917	.532
3- 0	3.000	.563
3- 1	3.083	.594
3- 2	3.167	.627
3- 3	3.250	.666
3- 4	3.333	.694
3- 5	3.417	.729
3- 6	3.500	.766
3- 7	3.583	.802
3- 8	3.667	.840
3- 9	3.750	.879
3-10	3.833	.918
3-11	3.917	.959
4- 0	4.000	1.000
4- 1	4.083	1.042
4- 2	4.167	1.085
4- 3	4.250	1.129
4- 4	4.333	1.174
4- 5	4.417	1.219
4- 6	4.500	1.266
4- 7	4.583	1.333
4- 8	4.667	1.361
4- 9	4.750	1.410
4-10	4.833	1.460
4-11	4.917	1.510
5- 0	5.000	1.563
5- 1	5.083	1.615
5- 2	5.167	1.669
5- 3	5.250	1.723
5- 4	5.333	1.778
5- 5	5.417	1.834
5- 6	5.500	1.891
5- 7	5.583	1.948
5- 8	5.667	2.007
5- 9	5.750	2.066
5-10	5.833	2.127
5-11	5.917	2.188
6- 0	6.000	2.250
6- 1	6.083	2.313
6- 2	6.167	2.377
6- 3	6.250	2.441
6- 4	6.333	2.507
6- 5	6.417	2.573
6- 6	6.500	2.641
6- 7	6.583	2.709
6- 8	6.667	2.778
6- 9	6.750	2.848
6-10	6.833	2.918
6-11	6.917	2.990
7- 0	7.000	3.063
7- 1	7.083	3.136
7- 2	7.167	3.210
7- 3	7.250	3.285
7- 4	7.333	3.361
7- 5	7.417	3.438
7- 6	7.500	3.516
7- 7	7.583	3.594
7- 8	7.667	3.674
7- 9	7.750	3.754
7-10	7.833	3.835
7-11	7.917	3.917
8- 0	8.000	4.000
8- 1	8.083	4.084
8- 2	8.167	4.169
8- 3	8.250	4.254
8- 4	8.333	4.340
8- 5	8.417	4.427
8- 6	8.500	4.516
8- 7	8.583	4.604
8- 8	8.667	4.695
8- 9	8.750	4.785
8-10	8.833	4.877
8-11	8.917	4.969
9- 0	9.000	5.063
9- 1	9.083	5.157
9- 2	9.167	5.252
9- 3	9.250	5.348
9- 4	9.333	5.444
9- 5	9.417	5.542
9- 6	9.500	5.641
9- 7	9.583	5.740
9- 8	9.667	5.841
9- 9	9.750	5.941
9-10	9.833	6.043
9-11	9.917	6.147
10- 0	10.000	6.250
10- 1	10.083	6.354
10- 2	10.167	6.460
10- 3	10.250	6.566
10- 4	10.333	6.673
10- 5	10.417	6.781
10- 6	10.500	6.891
10- 7	10.583	7.000
10- 8	10.667	7.111
10- 9	10.750	7.223
10-10	10.833	7.335
10-11	10.917	7.449
11- 0	11.000	7.563
11- 1	11.083	7.677
11- 2	11.167	7.794
11- 3	11.250	7.910
11- 4	11.333	8.028
11- 5	11.417	8.147
11- 6	11.500	8.266
11- 7	11.583	8.386
11- 8	11.667	8.507
11- 9	11.750	8.629
11-10	11.833	8.752
11-11	11.917	8.876
12- 0	12.000	9.000
12- 1	12.083	9.125
12- 2	12.167	9.252
12- 3	12.250	9.379
12- 4	12.333	9.507
12- 5	12.417	9.636
12- 6	12.500	9.766
12- 7	12.583	9.896
12- 8	12.667	10.028
12- 9	12.750	10.160
12-10	12.833	10.293
12-11	12.917	10.428
13- 0	13.000	10.563

No. 647 "FyeR-Ward" Flat Surface All Steel Fire Doors

Inspected by the Underwriters' Laboratories, Inc., Sponsored by The National Board of Fire Underwriters
Approved by Factory Mutual Laboratories

There are many doorway openings which should be protected by fire doors, but which have been neglected for the simple reason that ordinary fire doors would not harmonize with their surroundings. It has therefore been a question of doing without, putting in a door that would not harmonize or going to a very expensive installation using hollow metal doors. Realizing this, R-W engineers have produced in the FyeR-Ward door, something entirely new; a door of distinction and character; a door which enhances, rather than detracts from the general appearance of the installation, at a price which is not objectionable.

This door is suitable for Class A-B-C-D-E or F Locations

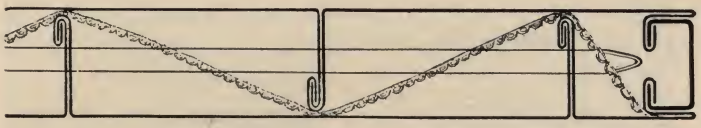
Standard fire door sash for glass can be built into these doors in a similar manner to other fire doors when the doors are to be installed in localities permitting glass. See page 235 for information concerning sash.

This door presents an entire flush surface on both sides, made up from steel panels about 10 inches wide, extending the full height of the door. This construction permits the finishing of the door to represent a slab type door, or each of the panels can be grained to look like a wood door. The door panels are channel shaped interlocking members, with the legs of the channels forming the panels on each side of the door, staggered so that there is a flange every 5 inches measured in the horizontal plane, through the full height of the door. These flanges extend through the full thickness of the door, serving as stiffening reinforcements. Steel rods, approximately 18 inches on center, extend through the door horizontally through holes in the flanges of the channels, serving to unite the two sides of the door, into a rigid construction.

Lighter in Weight Means Saving in Freight

No. 647 "FyeR-Ward" Flat Surface All Steel Fire Doors

(Continued)



Steel rods, approximately 18″ on center, extend through the door horizontally, serving to unite the two sides of the door into a rigid construction.

Heavy steel channels are assembled to the four edges of the door to complete the structure, and to present a neatly finished appearance. All the metal work of the door is made of galvanized steel, the material forming the outside face of the door being No. 22 gauge. A sheet of corrugated asbestos is installed between the metal sheets forming the two sides of the door, being interwoven to pass around the flanges of the channel shaped members forming the face of the door. This construction provides not only the insulating qualities of the asbestos, but also forms two air spaces inside the door.

These doors are inspected by the **Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters. Also approved by Factory Mutual Laboratories. They can be installed in all the usual approved forms, such as swinging doors, sliding doors, and vertical lift doors.** FyeR-Ward doors are made in one thickness only, being 1 3/16″ thick. However, they carry the same credits for insurance rates as the 3-ply tin clad door. They weigh between 4½ and 5 pounds per square foot as compared with 8 lbs. per square foot for three-ply tin clad doors. This means an easier operating door, and also a tidy savings when freight bills are figured up.

The regular sizes of doors to which we can apply labels, are sliding doors up to 120 square feet with neither dimension exceeding 12′0″ (on sliding doors we must attach the rear binder pocket to the door before we are permitted to attach label); swinging doors in pairs for openings up to 120 square feet in area not exceeding 12′0″ in height or 10′0″ in width, single swing doors not exceeding 12′0″ in height and 6′0″ in width; and vertical doors for openings not exceeding 80 sq. ft. in area, with neither height nor width exceeding 10 ft.

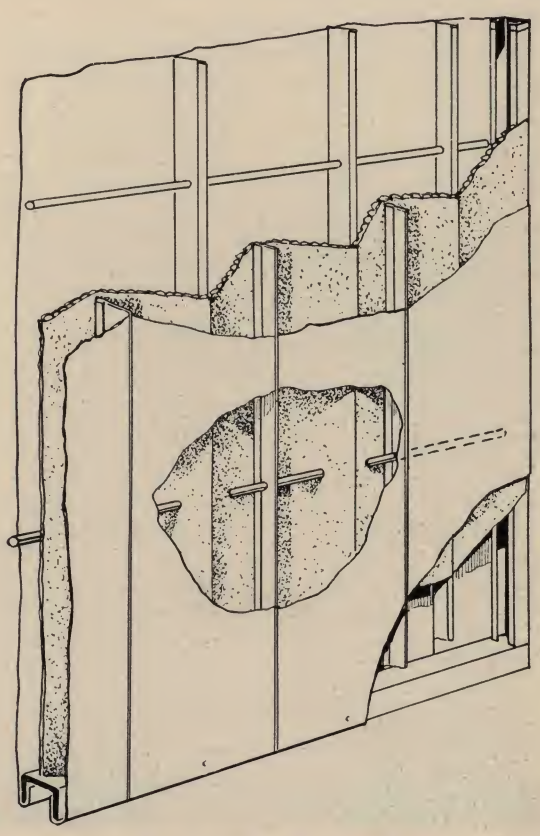
We are authorized to apply "Oversize" Door Labels to sliding doors not exceeding 120 square feet in area with either height or width between 12′0″ and 14′0″; single swing doors from 6′0″ to 7′0″ wide and from 12′0″ to 14′0″ high; and swinging doors in pairs for openings from 10′0″ to 14′0″ wide and from 12′0″ to 14′0″ high.

"Oversize" Door Labels affixed to doors, do not indicate that such doors are capable of furnishing standard fire protection, but only that the doors conform to the construction requirements. Authorities having jurisdiction should be consulted as to the size of the door acceptable in a given location.

Notched and Rabbeted Doors

Doors that are either notched, or rabbeted are not standard, and cannot bear the Underwriters' label.

Certificates of inspection indicating that doors are otherwise built according to standard details, can be furnished for notched doors if requested when order is sent in.



Cut away view showing construction of No. 647 "FyeR-Ward" Door.

If doors are mortised or otherwise prepared for hardware other than standard fire door hardware, they can only be labeled provided that ALL of the standard labeled hardware is also applied to the doors.

Where fire resisting doors are demanded but a label not required, "FyeR-Ward" doors may be hung on standard hardware, the same as wood doors. In this case, they are reinforced for butt hinges, locks, door closers, surface or flush bolts or any other hardware.

When ordering these doors, be sure to specify how we are to furnish them:

A. Drilled for hardware only.
B. Hardware attached.
C. Doors only (hardware fitted by others).

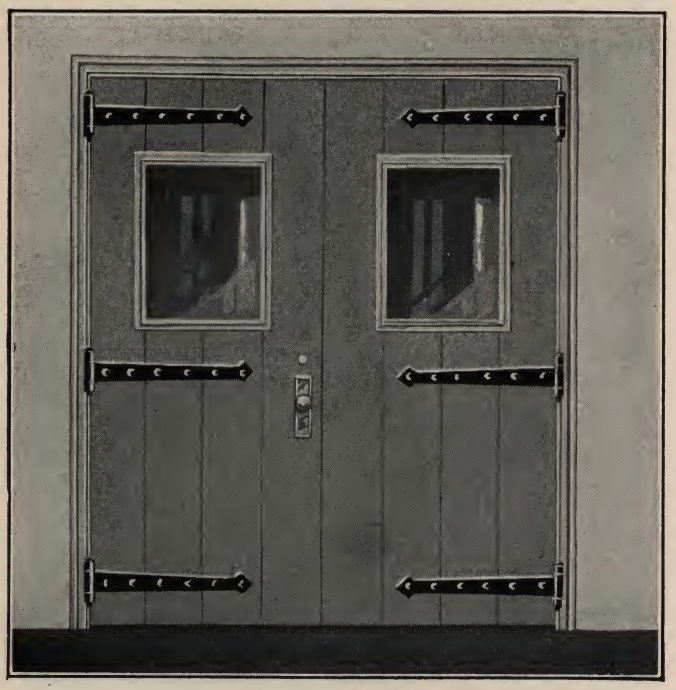
Sectional Doors

The maximum size of doors which can be shipped at regular freight rates are as follows: 7 ft. x 22 ft.; 7 ft. 6 in. x 14 ft.; 7 ft. 10 in. x 12 ft. 4 in.; 8 ft. 2 in. x 10 ft. 4 in.

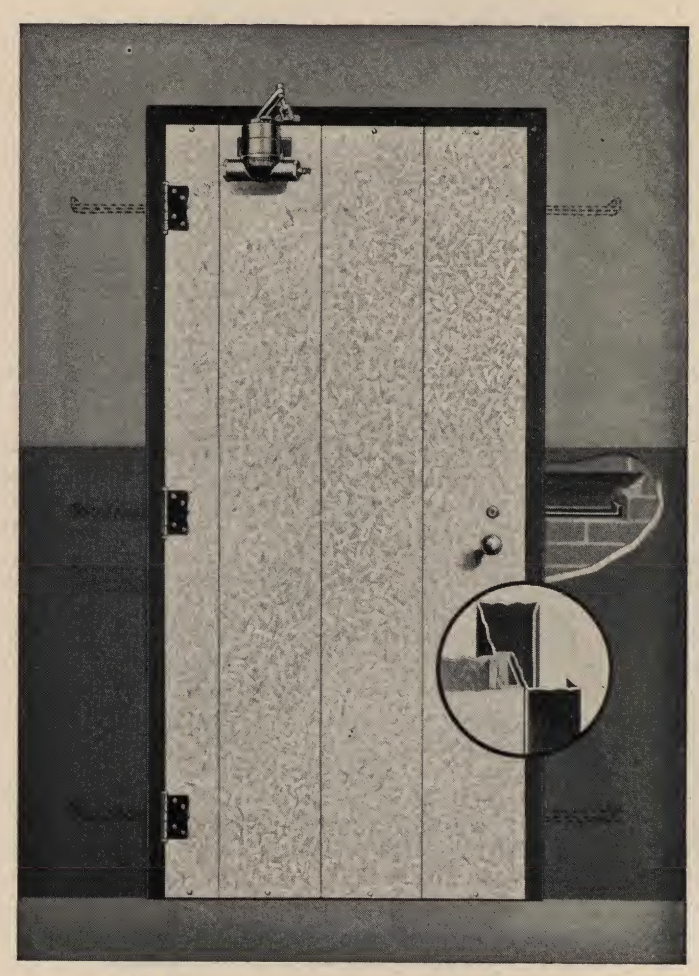
Doors larger than the above take special freight rates, but where doors are to cover large openings they may be built in two horizontal sections not exceeding the sizes given above to be bolted together in the field. Generally sectional doors can be kept within the limits of standard freight rates. Each section of a sectional door must be labeled.

No. 1647 "FyeR-Ward" Fire Door

Doors Are 1 13/16" Thick and Weigh 4½ to 5 Pounds per Square Foot



A splendid low-priced door for industrial and public buildings.



Left hand single door, showing construction of sheet metal frame. Doors may also be mounted in channel frames.

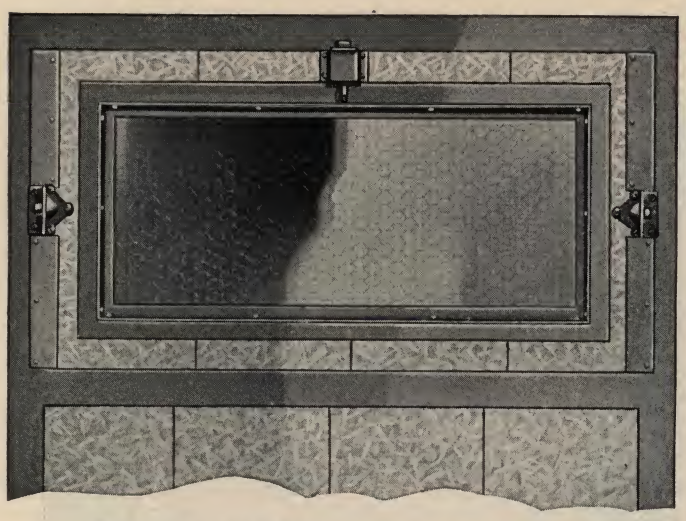
The No. 1647 Fire Door with hardware as described on this and the following pages is acceptable for Class B, C, D, or E openings and inspected by the Underwriters' Laboratories, sponsored by the National Board of Fire Underwriters. Also approved by Factory Mutual Laboratories, for such openings (for Class A openings, see No. 647 Fire Doors on previous page).

Single swinging doors may be labeled for openings not exceeding 4′0″ x 8′ 0″; pairs of doors for openings not exceeding 8′ 0″x 8′0″. All doors are mounted flush in steel frames (see description of frames on page 246).

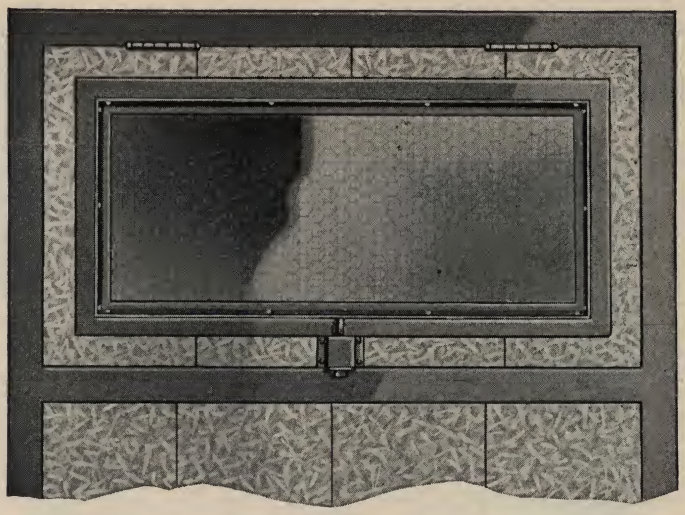
The doors are mortised or reinforced at the factory for all hardware such as hinges, locking bolts, locks, latches, and door checks. Three hinges are furnished for all doors, but on large openings one hinge is furnished for each 30″ or fraction thereof of door height. (A door 8′ high would have 4 hinges.) Four different types of hinges are available as follows: No. 435-4x4″ (page 407), Loose Pin Butt Hinges, No. 505 (page 408), Half Surface Butt Hinges 4″ high; No. 1035BB Hinges (page 400), 12″ or longer may be used in standard structural channel frames only. No. 1036BB Hinges (page 401) 12″ or longer may be used in No. 398 sheet metal frames only (page 246).

Doors may be provided with a mortise latch or lock having a throw of not less than ¾″ and made in accordance with the Underwriters' standards. The flush bolts are a heavy type which may be mortised into the face of the doors or into the edge of the doors as desired. Doors can only be labeled when the hardware listed above is furnished with the door (no other hardware).

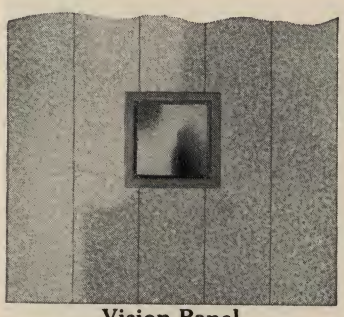
No. 1647 "FyeR-Ward" Fire Door



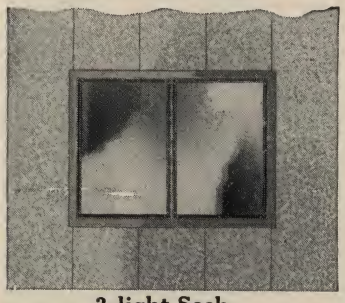
Pivoted single light transom for single door.



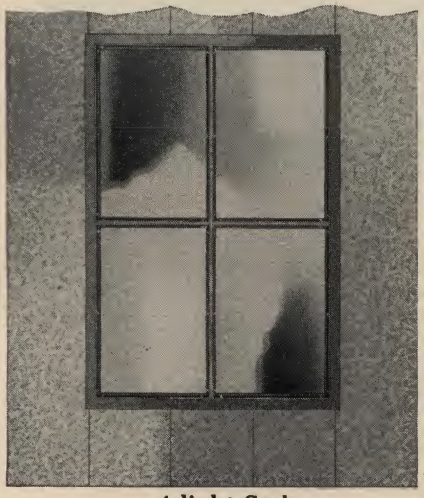
Hinged single light transom for single door.



Vision Panel



2-light Sash



4-light Sash

Transoms illustrated may be installed above the doorway. When transom sash is installed, the over all height of door and transom unit cannot exceed 10 feet. Transoms are not permitted in Class B openings. The transom can be either pivoted, hinged or stationary. The same limits given for size of lights in doors as given below apply to the transoms. Transoms may be used with No. 1647 doors only.

GLASS PANELS OR SASH: Nos. 647 or 1647 doors in Class B openings may have a vision panel not more than 100 square inches in area, neither width nor height exceeding 12 inches. If two doors are mounted in one opening, the combined glass area for the two lights is not to exceed 100 square inches.

Nos. 647 or 1647 doors in Class C or F openings may have one or more single lights not exceeding 1296 square inches in area with neither width nor height exceeding 54 inches or may have divided lights not exceeding 400 square inches area for each light.

Nos. 647 or 1647 doors in Class E openings may have single lights not exceeding 720 square inches in area, 54 inches in height or 48 inches in width; or may have divided lights not exceeding 400 square inches in area for each light. The minimum distance from the edge of the door to the sash is 7 inches.

Directions For Ordering

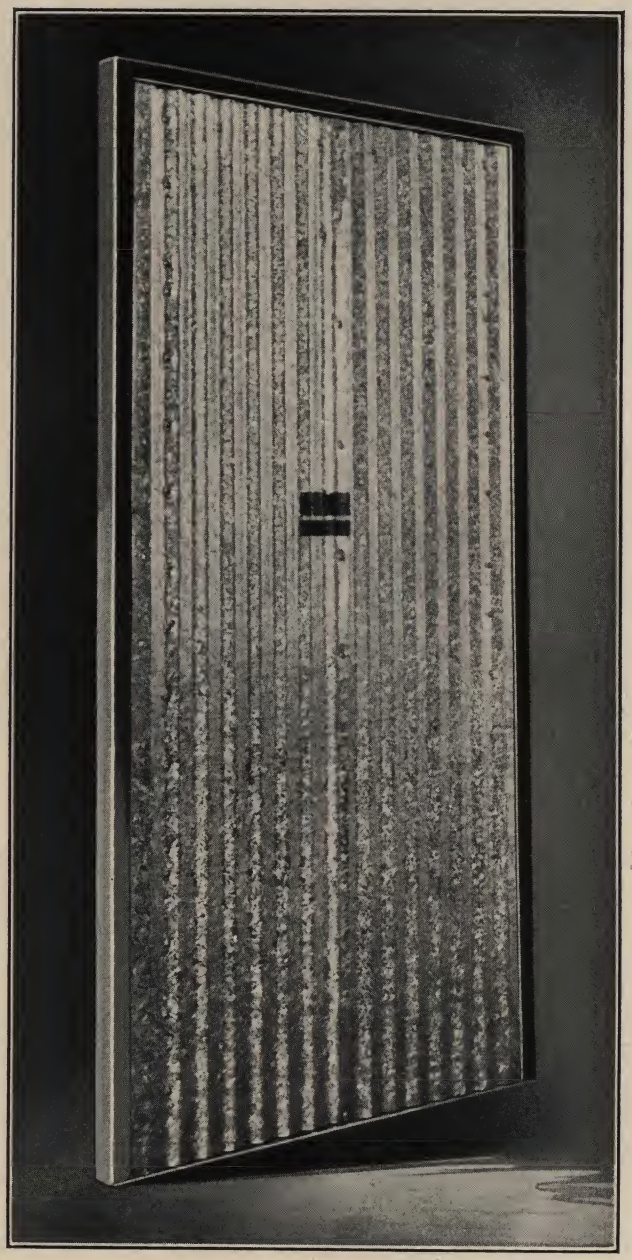
State number of openings and width and height of openings giving width first. Give thickness of wall and describe the kind of wall and specify whether or not the walls are plastered. State whether the doors are single or in pairs and send sketch showing the way the doors swing. If exterior doors, state whether doors open in or out. If doors have sash state size and number of lights desired. If frames are ordered state type, that is, channel or sheet metal, giving the size of channel when channel frames are ordered and stating whether the walls are to be plastered when ordering sheet metal frames. State kind of hardware desired.

If transoms are ordered specify whether they are to be hinged, pivoted or stationary.

"FyeR-Wall" Corrugated Sheet Metal Fire Doors

Two Mighty Fine Doors

Inspected by the Underwriters' Laboratories, Inc., Sponsored by The National Board of Fire Underwriters. Also Approved by Factory Mutual Laboratories



No. 347

No. 447

1. Generally speaking, we would recommend the use of the No. 347 or No. 447 FyeR-Wall corrugated sheel metal fire doors in locations where the door will be subject to rough usage, and where the door would be subject to conditions which might induce dry rot in a tin clad door. They are also well adapted to a building in which corrugated metal is used for other purposes. The doors are somewhat more difficult to install than a tin clad door because of the necessity of drilling holes in and making attachments to metal, but they may be purchased from the factory with all holes drilled for hardware in advance, thus eliminating that difficulty.

These doors show an exceptionally low maintenance cost in comparison with tin clad doors, the core of which is subject to dry rot. The tin covering is also much lighter than the material of which the "FyeR-Wall" door is built and can be much more easily damaged.

The body of both the 347 and the 447 door consists of two thicknesses of No. 24 gauge galvanized corrugated sheet steel, between which is placed a layer of sheet asbestos. The corrugations on the wall side of the door are horizontal and on the exposed side of the door the corrugations are vertical.

Doors constructed as above (less Asbestos Lining) make very Superior Factory Doors.

"FyeR-Wall" Corrugated Sheet Metal Fire Doors

No. 347 Doors—The vertical and the top horizontal outside frame members of the door consist of a heavy rolled angle. The edge of the corrugated sheet on the exposed side of the door is formed around the inside of the angle. The bottom horizontal member is a heavy tee bar having the corrugated sheets fitted over the stem of the tee bar in such a manner that no pockets are formed at the bottom of the door which would collect dirt and which would allow water to pass thru the door at those places. The horizontal and vertical members of the frame are securely welded together making a door of unusual ruggedness and rigidity.

No. 447 Doors—The vertical outside frame members of the door consist of a heavy angle and a light angle. The edge of the corrugated sheet on the exposed side of the door is flattened out and bent around the heavy angle of the frame which presents a neat finished appearance without exposed raw edges of steel. The light angle covers the end of the horizontal corrugated sheets on the wall side of the door. The top and bottom horizontal frame members are heavy bars of steel which are completely covered with galvanized sheet metal. The horizontal and vertical members of the frame are bolted together making a well-knit, sturdy, durable door.

Section of No. 447 door showing construction—steel frame; steel face with vertical corrugations; asbestos filler-insulator; and steel back with corrugations horizontal.

Allowances are made in the construction of both the 347 and the 447 door so that when exposed to heat, all parts can expand freely without distorting the shape of the door. Therefore, in case of fire, the door will retain its normal position close to the wall, successfully preventing the passage of flames.

Nos. 347 and 447 Doors

Built in either square top or incline top and can be mounted with sliding door hardware or with lap or flush types of swinging door hardware or vertical door hardware.

The construction of the door is exceptionally rigid so that it will maintain its shape under all conditions. The door is especially good in places where subjected to rough usage and where tin clad doors would easily be damaged.

The thickness of the door is 2⅝".

Weight about five pounds per square foot.

Doors for openings not exceeding the following dimensions are furnished with labels of the Underwriters' Laboratories. When so required doors can be furnished with labels of the Factory Mutual Laboratories.

Single sliding doors for openings not more than 120 square feet with neither width nor height exceeding 12 feet. (On sliding doors, we must attach the rear binder pocket to the door before we are permitted to attach label.)

Openings for single swinging doors not exceeding 6 feet in width and 12 feet in height and swinging doors in pairs for opening not exceeding 10 feet in width and 12 feet in height.

Vertical doors for openings not exceeding 80 square feet in area, with neither height nor width exceeding 10 feet.

Doors with Glass Panels

Glass Panels installed in "FyeR-Wall" Corrugated Sheet Metal Fire Doors are illustrated and described on page 240.

Sectional Doors

The maximum sizes of doors which can be shipped at regular freight rates are as follows: 7 ft. x 22 ft.; 7 ft. 6 in. x 14 ft.; 7 ft. 10 in. x 12 ft. 4 in.; 8 ft. 2 in. x 10 ft. 4 in.

Doors larger than the above take special freight rates, but where doors are to cover large openings they may be built in two vertical sections not exceeding the sizes given above to be bolted together in the field. Generally sectional doors can be kept within the limits of standard freight rates. Each section of a sectional door must be labeled.

"Oversize" Door Labels

We are authorized to apply "Oversize" Door Labels to sliding doors between 120 square feet and 200 square feet in area with either height or width between 12′0″ and 16′0″; single swing doors from 6′0″ to 7′0″ wide and from 12′0″ to 14′0″ high; and swinging doors in pairs for openings from 10′0″ to 14′0″ wide and from 12′0″ to 14′0″ high.

"Oversize" Door Labels affixed to doors, do not indicate that such doors are capable of furnishing standard fire protection, but only that the doors conform to the construction requirements. Authorities having jurisdiction should be consulted as to the size of the door acceptable in a given location.

Notched and Rabbeted Doors

Doors that are either notched, mortised, beveled or rabbetted are not standard, and cannot bear the Underwriters' label.

Certificates of inspection indicating that doors are otherwise built according to standard details, can be furnished for notched doors if requested when order is sent in.

If doors are mortised or otherwise prepared for hardware other than standard fire door hardware, they can only be labeled provided that ALL of the standard labeled hardware is also applied to the doors.

Window Shutters

Corrugated sheet metal window shutters are made of the same material in the same manner and with the same care as are the fire doors mentioned above. No glass permitted in shutters. Fixtures for Window Shutters on page 304.

Directions for Ordering

State: First—Width and height of opening.

Second—Are doors to be square top or incline top? If incline top state whether right or left hand. Doors which slide to the right when opening are right hand doors.

Third—State method of mounting doors; whether single sliding, sliding doors in pairs, single swing, swinging doors in pairs or vertical doors.

Fourth—State class of opening in building which doors protect—opening in fire wall, opening in vertical shaft, opening in corridor or room partition, opening to exterior fire escape or openings in exterior walls, see full description on page 230.

Openings to exterior fire escapes must have doors of the swinging type only.

Fifth—If glass panels are wanted, state number and size of panels.

Sixth—If doors are to be built in sections, it should be so stated.

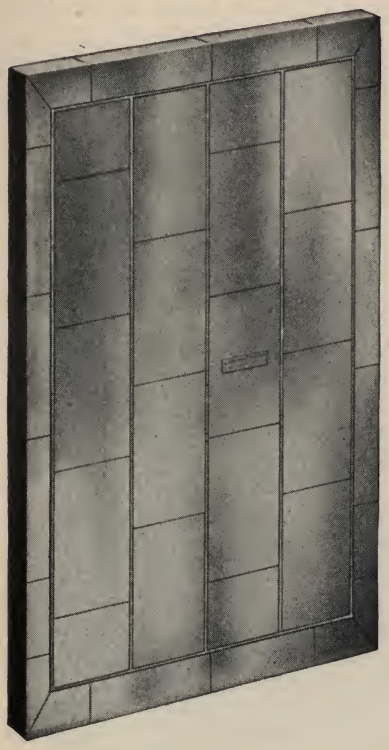
When ordering these doors, be sure to specify how we are to furnish them:

A. Drilled for hardware only.
B. Hardware attached.
C. Doors only (hardware fitted by others).

Lighter in Weight Means Saving in Freight

No. 446 Standard Tin Clad Fire Doors and Window Shutters

Inspected by the Underwriters' Laboratories, Inc. Sponsored by National Board of Fire Underwriters. Approved by Factory Mutual Laboratories



The R-W No. 446 Tin Clad Door is perhaps the oldest type of fire door and is very easily installed with ordinary carpenters' tools. The door is more easily damaged from rough usage than other fire doors because of the thin tin metal covering and in favorable locations the wood core is subject to dry rot which is not easily discovered in the door.

Standard 2-ply (1¾ inch) doors are made of two layers of tongue-and-groove lumber, with one layer vertical and the other horizontal; thoroughly fastened together by wrought iron clinch nails not over 8 inches apart; double lock joints in the tin covering as required under the rules of the Underwriters' Laboratories. Weight 6 pounds per square foot.

Standard 3-ply (2½ inch) doors are made of three layers of tongue-and-groove lumber, the outside layers vertical and the inner layer horizontal; these layers are fastened together and the door tin covered in the same manner as the 2-ply doors just described. Weight, 8 pounds per square foot.

The wood is non-resinous. The boards are not over 8 inches wide. They are nailed through with clinch nails at each intersection. This makes warping impossible.

Standard Doors with Underwriters' Laboratories labels can be furnished for any size opening subject to the following limitations:

Three ply single Sliding Doors for openings 120 square feet in area, with maximum width or height not exceeding 12 feet.

Three ply Swinging Doors in pairs for openings, width not exceeding 10 feet and height not exceeding 12 feet.

Three ply single Swinging Doors for openings, width not to exceed 6 feet and height not to exceed 12 feet.

Two ply Single Sliding Doors for openings not exceeding 80 square feet in area with neither height nor width exceeding 10 feet.

Two ply Swinging Doors in pairs for openings not exceeding 80 square feet in area with neither width nor height exceeding 10 feet.

Two ply Single Swinging Doors for openings not exceeding 10 feet in height or 6 feet in width.

Two ply or three ply Vertical Doors for openings not exceeding 80 square feet in area with neither width nor height exceeding 10 feet.

"Oversize" Door Labels

We are authorized to apply "Oversize" door labels to tin clad fire doors exceeding dimensions given in preceding paragraphs.

"Oversize" Door Labels affixed to doors, do not indicate that such doors are capable of furnishing standard fire protection but only that the doors conform to the construction requirements. Authorities having jurisdiction should be consulted as to the size of the door acceptable in a given location.

Note: When so desired, doors can be furnished with labels of the Factory Mutual Laboratories.

Doors for Class A (see page 230)—openings in fire walls must be 3-ply. Doors or shutters for Classes B, C, D, E, and F (see page 230) openings may be either two or three-ply. It is usually advisable to consult the local representative of the Underwriters in regard to thickness of doors to be used.

Sectional Door

The maximum sizes of doors which can be shipped at regular freight rates are as follows: 7′ x 22′; 7′ 6″ x 14′; 7′ 10″ x 12′ 4″; 8′ 2″ x 10′ 4″.

Doors larger than the foregoing take special freight rates, but where doors are to cover large openings, they may be built in two vertical sections not exceeding the foregoing sizes given, to be bolted together in the field. Generally sectional doors can be kept within the limits of standard freight rates. Each section of a sectional door must be labeled.

Standard Fire Shutters (Tin Clad)

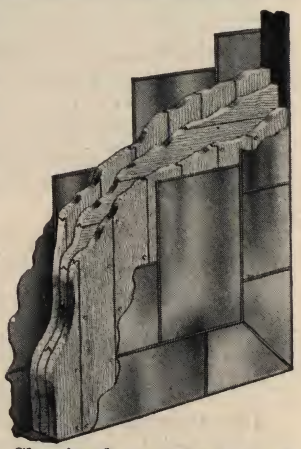
Are made of the same materials and in the same manner as are 2-ply (1¾ inch) fire doors and are of the same thickness. They are used on the outside of buildings to protect window openings. No glass permitted in shutters.

Glass Panels

Glass Panels installed in tin clad fire doors are illustrated and described on page 240.

Notched and Rabbeted Doors

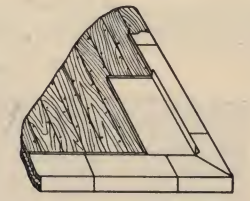
Doors that are either notched, mortised, beveled or rabbeted are not standard and cannot bear the Underwriters' label. Certificates of inspection indicating that doors are otherwise built according to standard details, can be furnished for notched doors if requested when order is sent in. If doors are mortised or otherwise prepared for hardware other than standard fire door hardware, they can only be labeled provided that ALL of the standard labeled hardware is also applied to the doors.



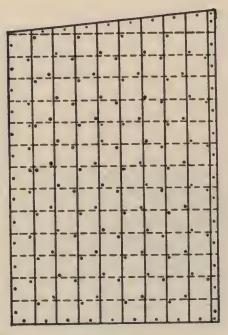
Showing layers of wood core —horizontal and vertical.

No. 446 Standard Tin Clad Fire Doors and Window Shutters

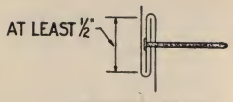
Showing clinched nail through core.



Showing tin applied to edges of door and first plates applied.



Showing nailing in wood core.



Vertical seam in tin—lock joint.

Horizontal seam in tin —lock joint.

Approved tin clad fire doors can only be built by experienced workmen following very definite specifications. The core must be built of thoroughly dried lumber of only a selected number of woods which have been found by experience to be suitable. Strength and resistance to atmospheric and other natural influences are of first importance.

The core may either be 2-ply or 3-ply, depending upon the situation in which the door is to be used.

Applying the tin covering is also a serious matter. The covering must be perfect; must be tight. All the joints in the covering of R-W tin-clad fire doors have double locked seams, with nails in each joint. When the seams are ironed down, the nail heads are concealed under the last lap of the seam so that the finished door presents a surface in which no nail heads whatever appear.

The pictures reveal how the individual face plates are tightly interlocked and thoroughly nailed to the core.

This tightly interlocked construction keeps air away from the wood core and the absence of oxygen prevents flame. In case of severe fire, the wood core becomes a body of charcoal under the intense heat.

Built in either square top or incline top and can be mounted with sliding door hardware or with lap or flush types of swinging door hardware or vertical door hardware.

Directions for Ordering Tin Clad Doors

State:

First—Width and height of opening.

Second—Are doors to have square top or incline top? (If inclined top state which way the door will move in opening, to the right hand or to the left hand.)

Third—State methods of mounting doors whether single sliding, sliding doors in pairs, single swing, swinging doors in pairs or vertical doors.

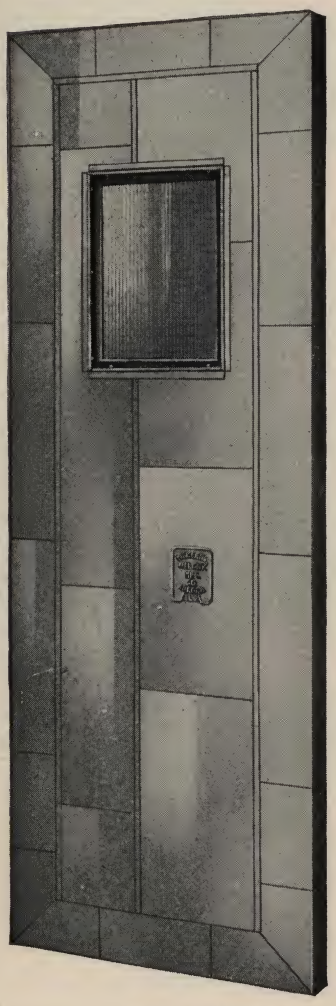
Fourth—State class of openings in building which doors protect; opening in fire wall, opening in vertical shaft, opening in corridor or room partition, opening to exterior walls. Opening to exterior fire escapes are of the swinging type only. See page 230.

Fifth—If glass panels are wanted, state number and size of panels.

Sixth—If doors are to be built in sections it should be so stated.

Fire Doors With Glass Panels

Tin Clad Fire Doors



No. 446

FyeR-Ward All Steel Fire Doors

No. 647
No. 1647 similar

FyeR-Wall Corrugated Sheet Metal Fire Doors

No. 447
No. 347 similar

Fire Doors With Glass Panels

Doors in Class B openings may contain a glass vision panel not to exceed 100 square inches per opening with neither height nor width exceeding 12 inches.

Doors in Class C openings may contain one or more wire glass panels, not exceeding 1296 square inches in area with neither height nor width exceeding 54 inches. If desired, each sash or panel can be divided into several lights not exceeding 400 square inches in area, each.

Doors in Classes E or F may contain one or more wire glass panels, not exceeding 720 square inches in area, height not exceeding 54 inches and width not exceeding 48 inches If desired each sash can be divided into several lights not exceeding 400 square inches in area each.

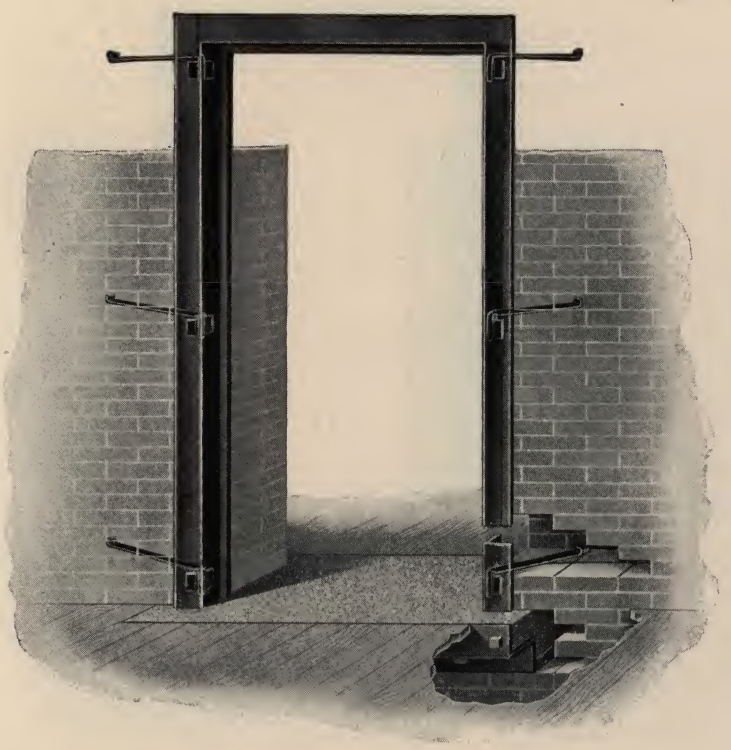
The minimum distance from the edge of the door to the sash openings, or the minimum distance between two sash openings (when steel muntin bars are not used) is 7″. The glass space is reduced somewhat in each case to permit room for the steel sash.

Glass for Fire Doors must be ¼ inch thick, clear or rough wired glass.

Angle Iron Door Frames

No. 386

For attaching to Face of the Wall with Regular Anchors



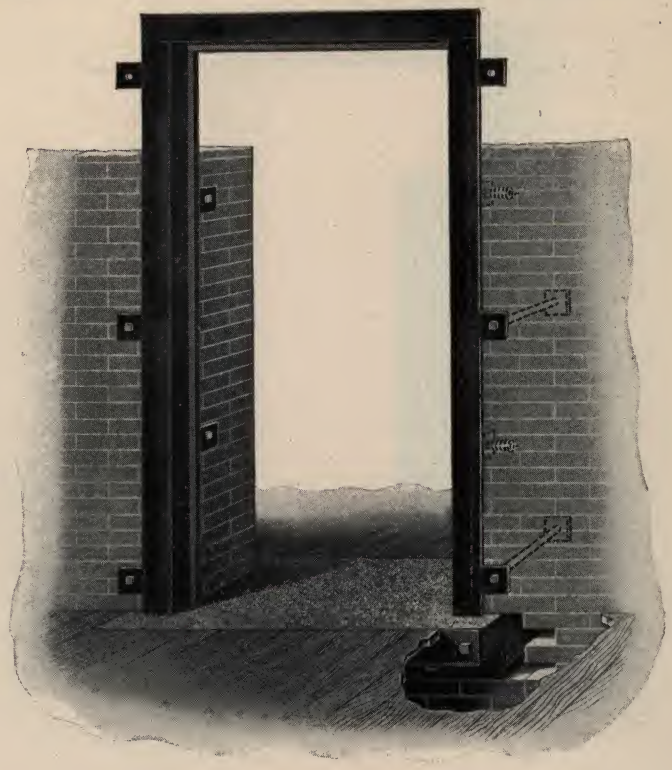
This frame is built according to the standard as given in the Regulations of the National Board of Fire Underwriters and recommended by the National Fire Protection Association. This type should be applied as the walls are being built, but may be used in old walls or after wall has been built.

With door on one side of wall

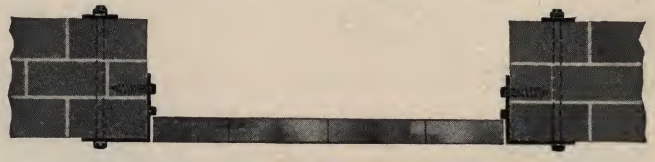
Furnished with adjustable anchors as illustrated when frame is used on one side of wall only or with thru bolts when frames are used on both sides of wall. The bottom end of frame extends into the concrete part of the sill 2 inches, except when used with sill shown in figure 2, page 247.

No. 1386

For attaching to Face of Wall with Clips and Bolts



This frame is built according to the standard given in the Regulations of the National Board of Fire Underwriters and recommended by the National Fire Protection Association. This type should be used only in old walls or after wall has been erected.



With door on one side of wall

Furnished with clips as illustrated. (Use No. 386 Frames in new walls). We will include necessary bolts if desired at a small additional cost if thickness of wall is given. The bottom end of frame extends into the concrete part of the sill 2 inches, except when used with sill shown in Figure 2, page 247.

Shipping Weights of 386 and 1386 Frames

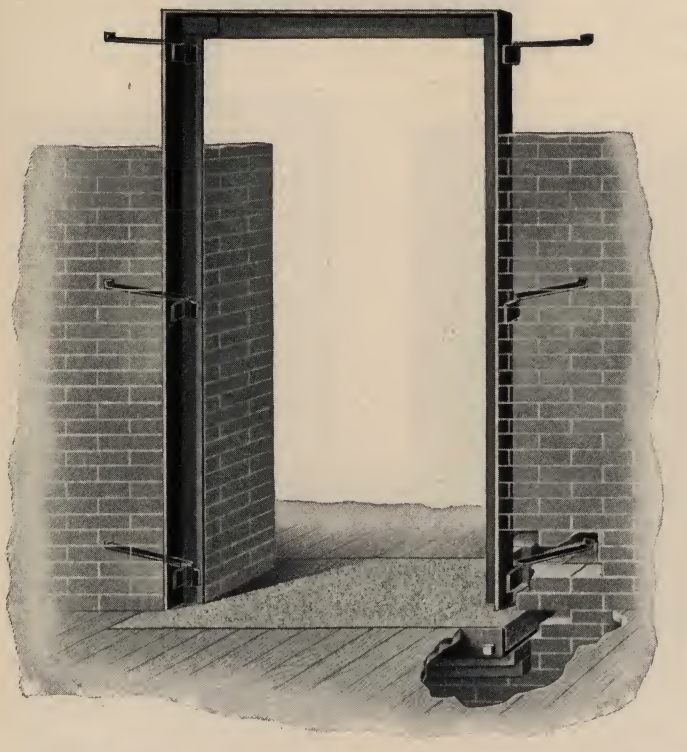
Size of Door Openings	386-3 or 1386-3 for 3-Ply Tin Clad or "FyeR-Wall" Doors 3½"x3½"x¼" Angle	386-2 or 1386-2 for 2-Ply Tin-Clad or No. 647 "FyeR-Ward" Doors 3"x3"x¼" Angle	Size of Door Openings	386-3 or 1386-3 for 3-Ply Tin-Clad or "FyeR-Wall" Doors 3½"x3½"x¼" Angle	386-2 or 1386-2 for 2-Ply Tin-Clad or No. 647 "FyeR-Ward" Doors 3"x3"x¼" Angle
3′ wide x 7′ high	125 lbs.	110 lbs.	7′ wide x 7′ high	149 lbs.	130 lbs.
4′ wide x 7′ high	131 lbs.	115 lbs.	8′ wide x 7′ high	155 lbs.	135 lbs.
5′ wide x 7′ high	137 lbs.	120 lbs.	9′ wide x 7′ high	161 lbs.	140 lbs.
6′ wide x 7′ high	143 lbs.	125 lbs.	10′ wide x 7′ high	167 lbs.	145 lbs.
			For Frames higher or lower than 7′, add or detract per foot of opening.		
				14 lbs.	12 lbs.

Note—When fixtures are ordered complete with frames, we attach pintles and keepers to the frame without extra charge.

Directions for Ordering—First—Send sketch with actual dimensions of opening in wall on old work already constructed. On new work state size of door required and frame will be built accordingly.
Second—State whether frame extends into concrete or rests on sill.
Third—Is frame to be used on one or both sides of wall?
Fourth—If for single or pairs of doors.
Fifth—On which side are hinge pintles to be attached and what type are to be used? If for single doors also state type of latch keeper to be used.
Sixth—Thickness of wall.
Seventh—Thickness of doors.
Note—For description of sills see page 246

Angle Iron Door Frames

No. 387
Rabbeted Type
For Attaching to Wall with Regular Anchors

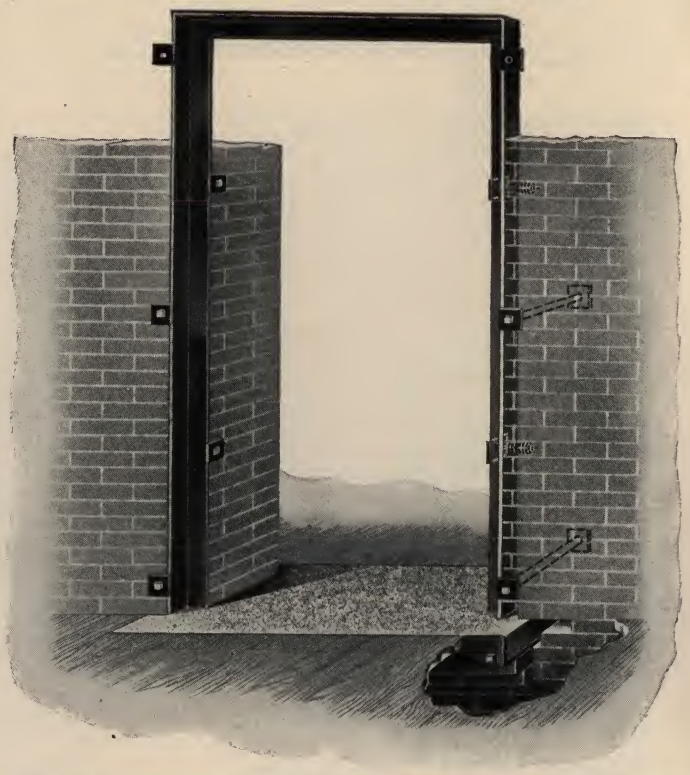


The angle iron as shown above in corbeled concrete sill is not part of the frame.

This frame is built according to the standard given in the Regulations of the National Board of Fire Underwriters and recommended by the National Fire Protection Association. This type is best adapted for building into wall when wall is being erected.

Furnished with adjustable anchors as illustrated when frame is used on one side of wall only or with double ties when frames are used on both sides of wall. The bottom end of frame extends into the concrete part of the sill 2 inches, except when used with sills shown in figure 2 on page 247.

No. 1387
Rabbeted Type
For Attaching to Wall with Clips and Bolts



The angle iron as shown above in corbeled concrete sill is not part of the frame.

This frame is built according to the standard given in the Regulations of the National Board of Fire Underwriters and recommended by the National Fire Protection Association. This type can be attached to an old wall easier than the No. 387 Frame as wall clips are furnished instead of anchors. (Use No. 387 Frame in new walls).

Furnished with wall clips as illustrated. We will include necessary bolts at a small additional cost if so advised and if thickness of wall is given. The bottom end of frame extends into the concrete part of the sill 2 inches, except when used with sills shown in Figure 2 on page 247.

Shipping Weights of 387 and 1387 Frames

Size of Door Openings	387-3 or 1387-3 for 3-Ply Tin Clad or "FyeR-Wall" Doors 3′x3′x¼″ Angle	387-2 or 1387- for 2-Ply Tin Clad or 647 "FyeR-Ward" Doors 2½″x2½″x¼″ Angle
3′ wide x 7′ high	110 lbs.	95 lbs.
4′ wide x 7′ high	115 lbs.	100 lbs.
5′ wide x 7′ high	120 lbs.	105 lbs.
6′ wide x 7′ high	125 lbs.	110 lbs.

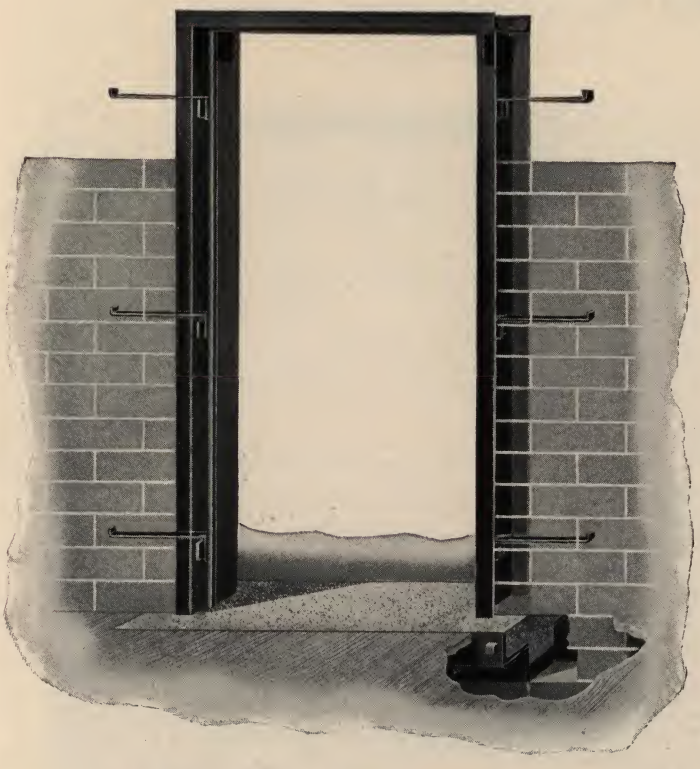
Size of Door Openings	387-3 or 1387-3 for 3-Ply Tin Clad or "FyeR-Wall" Doors 3″x3′x¼″ Angle	387-2 or 1387-2 for 2-Ply Tin Clad or 647 "FyeR-Ward" Doors 2½″x2½″x¼″ Angle
7′ wide x 7′ high	130 lbs.	115 lbs.
8′ wide x 7′ high	135 lbs.	120 lbs.
9′ wide x 7′ high	140 lbs.	125 lbs.
10′ wide x 7′ high	145 lbs.	130 lbs.
For Frames higher or lower than 7′, add or deduct per foot of opening:		
	12 lbs.	10 lbs.

Note: When fixtures are ordered complete with frames, we attach pintles and keepers to the frame without extra charge.

Directions for Ordering—First—Send sketch with actual dimensions of opening in wall (i. e. the space to be occupied by the frame) on old work already constructed. On new work state size of door required and frame will be built accordingly.
Second—State whether frame extends into concrete or rests on sill.
Third—Is frame to be used on one or both sides of wall?
Fourth—If for single or pairs of doors.
Fifth—On which side are hinge pintles to be attached and what type are to be used? If for single doors also state type of latch keeper to be used.
Sixth—Thickness of wall.
Seventh—Thickness of doors.

Channel Door Frames

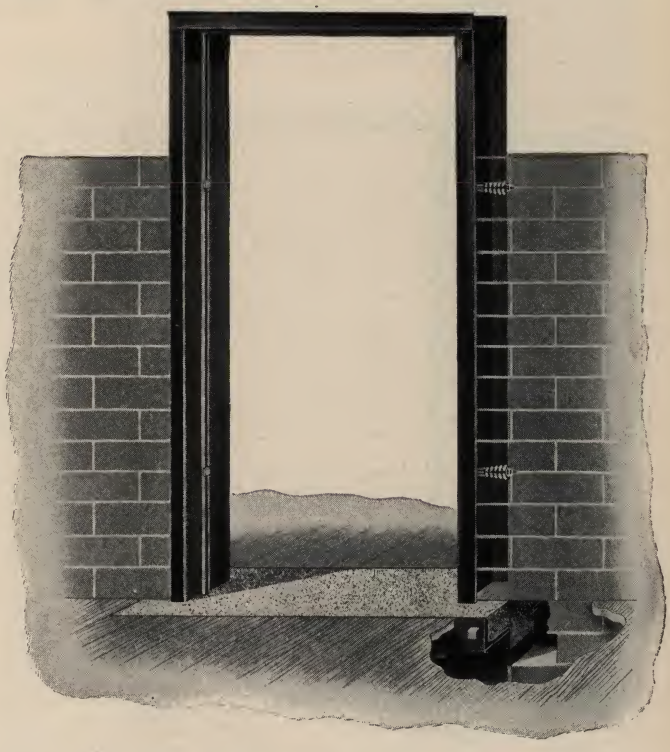
No. 388
With Regular Anchors



The Z Bar as shown in above concrete sill is not part of the frame, see page 247.

For Labeled Channel Door Frames **See pages 244-245.**

No. 1388
With Holes for Expansion Bolts



The Z Bar as shown in above concrete sill is not part of the frame, see page 247.

Channel frames are especially adapted for use with tile or terra cotta walls and may be built to extend from floor to ceiling when walls are not substantial enough to hold the frames securely in place.

The No. 388 frame is preferably placed in new walls as walls are built, while the No. 1388 type of frame is recommended for use in old walls or after wall has been erected. The latter is furnished knocked down, and is attached to wall with expansion bolts which we will furnish at a small additional cost if so instructed.

The width of the channel is generally 1 inch greater than the thickness of the tile or terra cotta. The doors can be attached to one or both sides of the frame. The bottom end of the frame extends into the concrete part of the sill 2 inches, except when used with sill shown in Figure 2 on page 247.

Shipping Weights of 388 and 1388 Frames

The following weights include light section channels with wall anchors. Fixtures are not included in these weights

Size of Door Openings	4′ Channels Weight Lbs.	5′ Channels Weight Lbs.	6′ Channels Weight Lbs.	7′ Channels Weight Lbs.	8′ Channels Weight Lbs.	9′ Channels Weight Lbs.	10′ Channels Weight Lbs.	12′ Channels Weight Lbs.	13′ Channels Weight Lbs.
3′ wide x 7′ in height	137	160	190	220	245	280	327	413	622
4′ wide x 7′ in height	143	168	210	232	258	295	334	435	656
5′ wide x 7′ in height	150	176	220	244	271	310	350	458	690
6′ wide x 7′ in height	156	184	230	256	284	325	368	480	725
7′ wide x 7′ in height	163	192	240	268	297	340	385	502	755
8′ wide x 7′ in height	171	200	250	280	310	355	400	525	790
9′ wide x 7′ in height	179	208	260	293	323	370	418	548	825
10′ wide x 7′ in height	187	216	270	305	336	385	435	570	860
For frames higher or lower than 7′, add or deduct per foot of opening	13	15	18	22	25	30	35	45	68

Directions for Ordering

First—Send sketch with actual dimensions of opening in wall on old work already constructed. On new work state size of door required and frame will be built accordingly.

Second—State whether frame extends into concrete or rests on sill.

Third—Will doors be used on one or more sides of wall?

Fourth—If for single or pairs of doors?

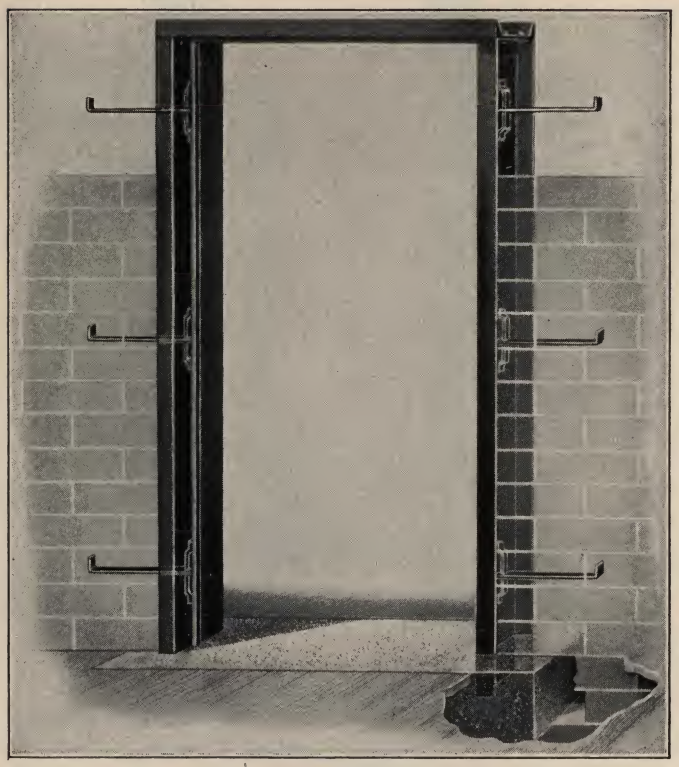
Fifth—On which side are hinge pintles to be attached and what types are to be used? If for single doors also state type of latch keeper to be used.

Sixth—Width of channel required.

Seventh—Thickness of doors.

Labeled Channel Door Frames For Fire Doors

R-W Nos. 392, 393 and 394 Steel Channel Frames



R-W No. 392 Labeled Channel Door Frame.
Note jambs extend into masonry floor
not less than 3 inches

R-W No. 393 Labeled Channel Door Frame.
Note steel sill made out of the same size channels
as the frame, included as part of frame.

Channel frames are especially adapted for use with tile or terra cotta walls, and may be built to extend from floor to ceiling when walls are not substantial enough to hold the frames securely in place.

These frames are made with adjustable, non-removable anchors not over 2′-6″ on centers, and the stops are ¾″ thick. Labels can be supplied for frames for openings not exceeding 10 ft. in width and 12 ft. in height. The label serves as evidence of inspection at the factories by Underwriters' Laboratories, Inc., and signifies compliance with the requirements of the Laboratories as established by fire test. Labels on door frames indicate only that the frames themselves have been constructed in accordance with the Underwriters' Laboratories requirements and do not indicate suitability of hardware.

The minimum size of channel which can be used in constructing the frame is 4 inches.

This type of frame is preferably placed in new walls as walls are built. The width of the channel is generally 1 inch greater than the thickness of the wall. The doors can be attached to one or both sides of the frame, as required.

Labeled Channel Door Frames for Fire Doors

(Continued)

No. 392 Steel Channel Frame

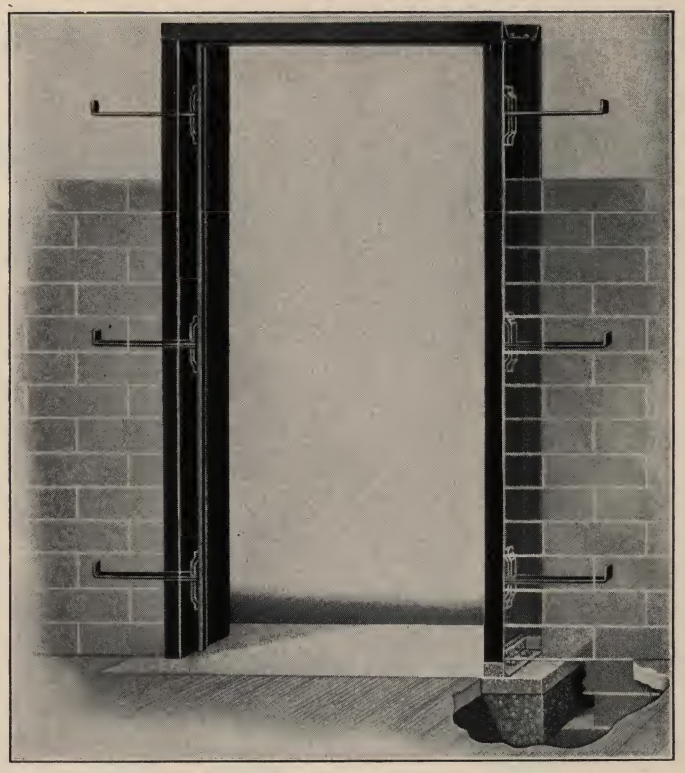
In the No. 392 type frame, the jambs extend into the masonry floor or wall not less than 3 inches.

No. 393 Steel Channel Frame

This frame has an all steel sill made of the same size channels as the frame. It is a four sided frame and generally used where the threshold is raised above the floor level.

No. 394 Steel Channel Frame

In this frame, the jambs extend to the floor only, and are attached to the floor by clip angles. This is used when a partition wall is to be installed on a floor already in place. This arrangement makes it unnecessary to cut existing floors for the lower end of the frame.



R-W No. 394 Labeled Channel Door Frame. Note jambs extend to floor only, and are attached there by clip angles.

Weight Table of Nos. 392, *393 and 394 Approved Channel Iron Door Frames

Size of Door Openings	4″ Channels	5″ Channels	6″ Channels	7″ Channels	8″ Channels	9″ Channels	10″ Channels	12″ Channels	13″ Channels
	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.
3′ wide x 7′ in height	143	166	192	222	248	286	323	420	631
4′ wide x 7′ in height	150	175	202	234	261	302	340	442	665
5′ wide x 7′ in height	157	183	212	245	274	317	357	465	699
6′ wide x 7 ′in height	164	192	223	257	287	332	375	487	733
7′ wide x 7′ in height	171	200	233	269	300	347	392	510	767
8′ wide x 7′ in height	179	209	243	280	314	363	409	533	800
9′ wide x 7′ in height	187	218	254	292	328	381	426	555	834
10′ wide x 7′ in height	195	227	265	305	342	400	444	578	868
For frames higher or lower than 7′, add or deduct per foot of opening	15	17	20	23	26	30	35	45	68
*For 393 Frames, add to above weights for each foot of opening width	5½	6¾	8¼	9¾	11½	13½	15¼	20¾	32

Directions for Ordering

First—Send sketch with actual dimensions of opening in wall on old work already constructed. On new work, state size of door required and frame will be built accordingly.

Second—State whether frame extends into concrete or rests on sill.

Third—Will doors be used on one or more sides of wall.

Fourth—If for single or pairs of doors?

Fifth—On which side are hinge pintles to be attached and what types are to be used? If for single doors, also state type of latch keeper to be used.

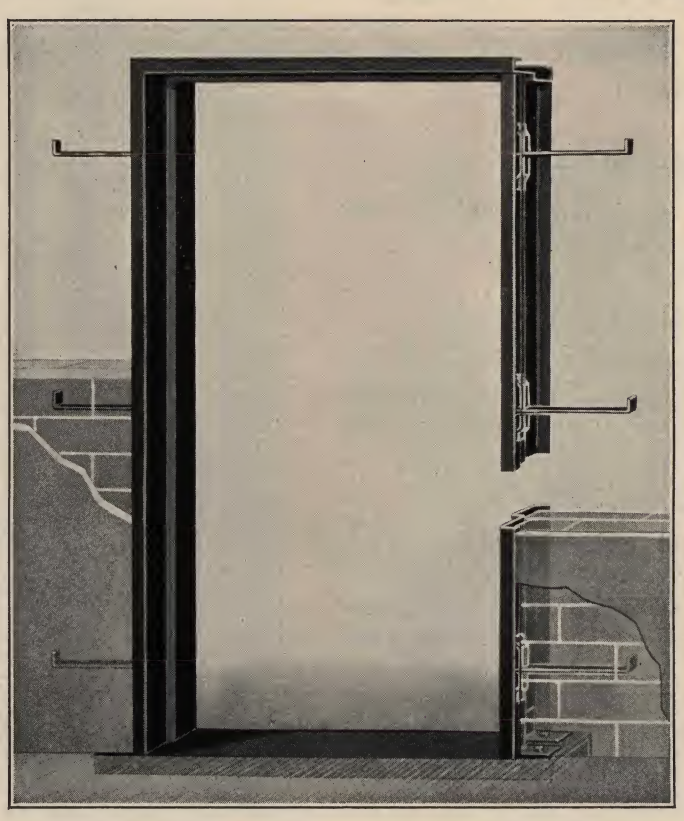
Sixth—Width of channel required.

Seventh—Thickness of doors.

With door on one side of wall.

With doors on both sides of wall.

No. 398 Labeled Sheet Metal Frame for Swinging Fire Doors



These frames are made of No. 14 gauge steel to conform to the thickness of the wall in which they are to be used. They are made with adjustable, non-removable anchors not over 2′ 6″ on centers, and the stop offset is 5/8″.

The label serves as evidence of inspection at the factories by Underwriters' Laboratories, Inc., and signifies compliance with the requirements of the Laboratories as established by fire tests. Labels on door frames indicate only that the frames themselves have been constructed in accordance with the Laboratories requirements and do not indicate suitability of hardware.

Labels can be applied to frames for single swinging doors without transoms for opening not exceeding 4 feet in width and 8 feet in height or for pairs of swinging doors in openings not exceeding 8 feet in width and 8 feet in height.

When transoms are installed above the opening, the overall height including transom shall not exceed 10 feet.

These frames are made for walls 4″, 5″, 6″, and 8″ thick. When frame is used on plastered walls the flanges extend into the plaster making the face of the frame flush with the plaster. The flanges furnished regularly is a depth of 1/2″ unless otherwise specified. When used on a wall which is not plastered the frames are made without this flange. Furnished to accommodate transoms as illustrated on page 235, when required. When transoms are used a whole steel muntin is provided just above the top of the door between the doors and the transoms.

This frame is only for B, C, D, E, and F openings. Provided with bolting lugs to attach to floor.

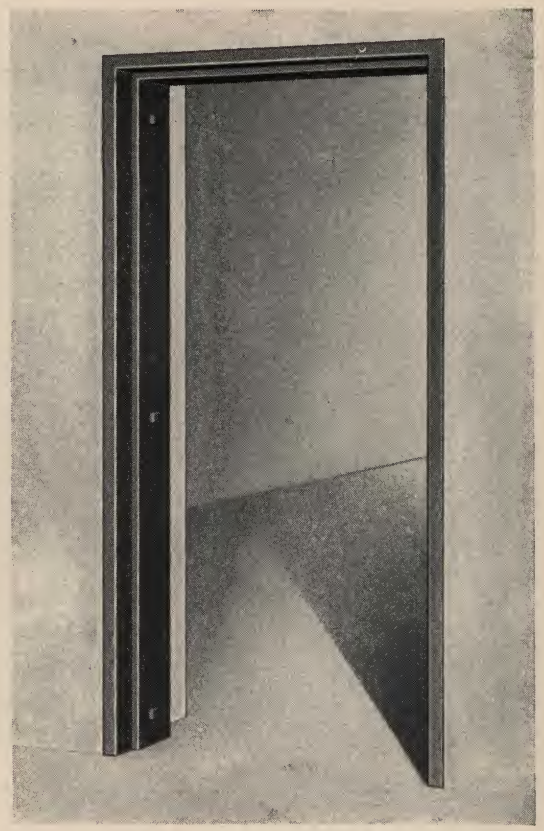
Weight, per Running Foot of Frame

4″ Wall	5″ Wall	6″ Wall	8″ Wall	Over 8″ Add per inch
2 1/8 lbs.	2 3/8 lbs.	2 3/4 lbs.	3 1/4 lbs.	1/4 lb.

No. 384 Tin Clad Door Frame For Face of Doorway

This door frame is very neat in appearance. It has a wood core covered with tin in the same manner as are our No. 446 Standard Tin Clad Fire Doors. (See pages 238, 239).

Frame is attached to wall with lag screws. It does not extend into the floor. Is rabbeted to receive the door so that the door is mounted flush into it. Can be rabbeted for 2 or 3-ply doors as required. Thickness of frame outside of rabbet is 2″. Comes in two widths, 6″ and 8″.



Fixtures or Doors are Not Included in Weight of Frames

Weight Table

SIZE OF DOOR OPENING	Frame 6 Inches Wide For 2 or 3-Ply Doors	Frame 8 Inches Wide For 2 or 3-Ply Doors
	Weight, Lbs.	Weight, Lbs.
3′ wide x 7′ in height	51	68
4′ wide x 7′ in height	54	72
5′ wide x 7′ in height	57	76
6′ wide x 7′ in height	60	80
7′ wide x 7′ in height	63	84
8′ wide x 7′ in height	66	88
For frames higher or lower than 7′ add or deduct per foot of opening	6	8

Directions for Ordering

First—Send sketch of actual dimensions of opening in wall on old work already constructed. On new work state size of door required and frame will be built accordingly.

Second—State thickness of wall.

Third—State thickness of doors.

Fourth—Are doors to be used on one or both sides of wall?

No. 389 Angle Iron Sills

All of the sills illustrated are manufactured according to the standard specifications and rules of the National Board of Fire Underwriters.

Sills as shown in Figs. 1 and 3 are a combination of angle irons and concrete. This makes a very substantial threshold, and when the concrete is worn it can be replaced at a very small expense.

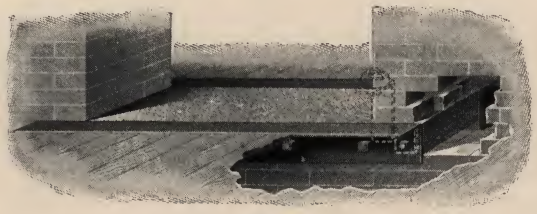


Fig. 1
3½ x 5 x ⅜-inch angle for flush sill with bolts

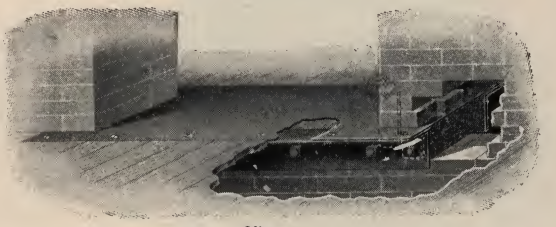


Fig. 2
3½ x 5 x ⅜-inch angle and ¼-inch steel plate for sill with bolts

Sills as shown in Fig. 2 are the same as Fig. 1 with the addition of a steel plate on top of the concrete. Plate is always assembled to angle irons on job unless otherwise specified.

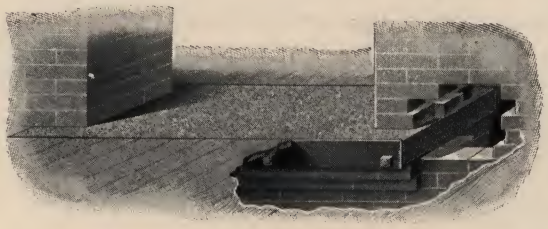


Fig. 3
3½ x 6 x ⅜-inch angle for corbeled sill with bolts

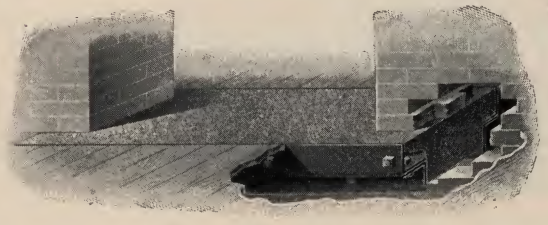


Fig. 4
4 x 4 x ⅜-inch Z bars for sills with bolts

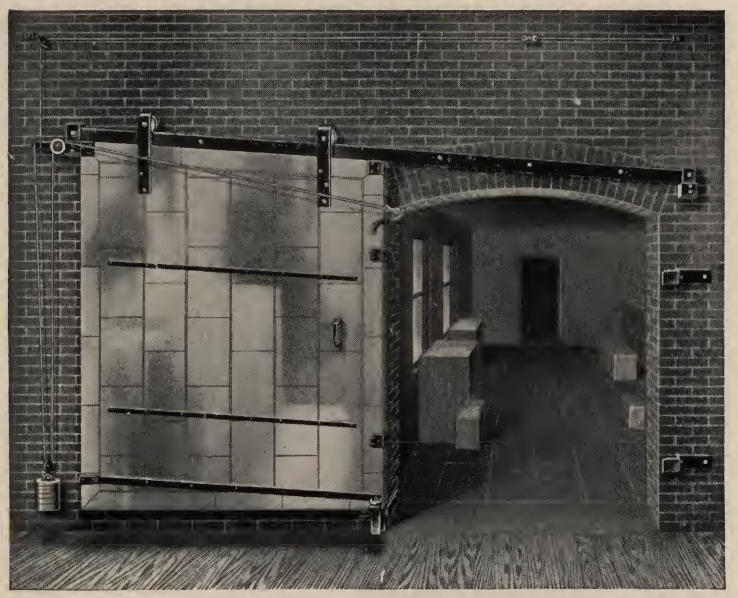
Sill as shown in Fig. 4 is a combination of Z bars and concrete, and has the same lasting qualities as mentioned for sills as shown in Figs. 1 and 3.

State thickness of walls so we can send bolts of the proper length or plate of the proper width, as same are included in the price of the sills.

Flat Track, Two Link Fire Door Hardware

No. 102 For Tin Clad Fire Doors
No. 1102 For "FyeR-Wall" Sheet Metal Doors
No. 2102 for "FyeR-Ward" Flat Surface Steel Doors

For Single Sliding Doors, Incline Track



No. 102-2 Hardware for 2-ply (1¾") No. 446-2 Labeled Tin Clad Doors (See page 238).

No. 102-3 Hardware for 3-ply (2½") No. 446-3 Labeled Tin Clad Doors (See page 238.)

No. 1102 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors. (For doors see page 236.)

This hardware is included in the list of Fire Door Hardware Inspected by the Underwriters' Laboratories, Inc., sponsored by The National Board of Fire Underwriters. Also approved by Factory Mutual Laboratories.

We recommend this hardware where head-room exceeds 3 feet.

This arrangement of automatic device provides two fusible links—one constantly in opening and exposed from both sides and one link near ceiling. If either link fuses, door is released and closes by gravity. If doors are used on both sides of wall, the cord can be made to pass through wall near ceiling, at points where it is shown attached to the wall in illustration, and same arrangement continued on other side, thus providing four links. The fusing of any one of the four links releases both doors.

Shipping weights in table below includes hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 102-2, 102-3, 1102 and 2102 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	170	5½ feet	215	8 feet	282
3½ feet	178	6 feet	225	8½ feet	288
4 feet	187	6½ feet	250	9 feet	297
4½ feet	195	7 feet	258	9½ feet	305
5 feet	205	7½ feet	266	10 feet	315

Shipping Weights of Partial Sets

Nos. 102-2, 102-3, 1102, or 2102 AUTOMATICS ONLY; weight per set.....44 lbs.

Nos. 102-2, 102-3, 1102, or 2102 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips: weight per set.....97 lbs.

*No. 102-2 hangers for No. 102-2 and 2102 hardware, per pair.....30 lbs.

*No. 102-3 hangers for 102-3 hardware, per pair.....30 lbs.

*No. 1102 hangers with back plates for No. 1102 hardware, per pair.....30 lbs.

No. 102-84 track with brackets (length equals twice width of opening plus 21 inches), per foot.....4½ lbs.

*For openings (not doors) over 6 feet wide, Underwriters' require three hangers.

Detail of parts shown on page 254.

Nos. 102, 1102 and 2102 Fire Door Hardware (Continued)

Headroom Requirements

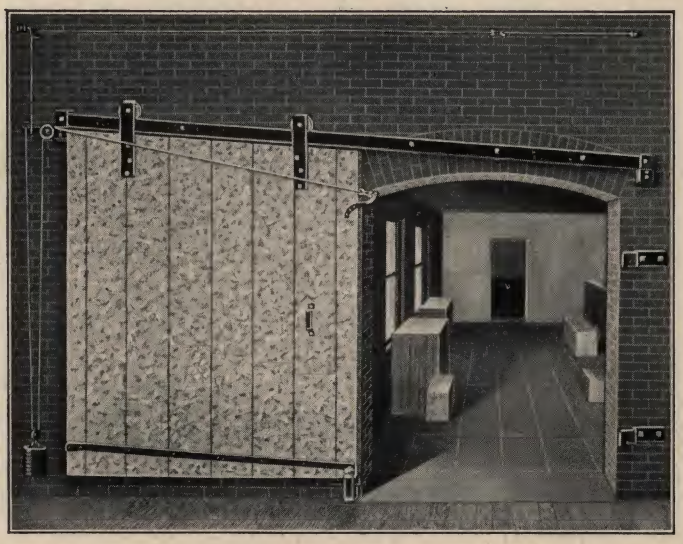
Square Top Openings: Nos. 102-2, or 102-3 hardware require 14 inches of headroom at edge of opening toward which the door slides in closing, plus ¾ inch for each foot of track. Nos. 1102 and 2102 require ½ inch more headroom.

Arched Top Openings: Nos. 102-2 or 102-3 hardware require 14 inches of headroom above top of arch plus ¾ inch for each foot the track extends beyond the center of the opening. Nos. 1102 and 2102 hardware require ½ inch more headroom.

Sidewall Requirements

These sets require 13½ inches on sidewall toward which door closes and width of opening plus 21 inches on opposite side. **Note.**—When No. 647 doors and No. 2102 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend four inches beyond the steel jamb. Therefore, the 21 inch dimension will be increased an amount equal to the width of the steel jamb.

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified. Other types of automatic closing devices are illustrated on page 251.



No. 2102 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door (See page 232).

Directions For Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½"), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand doors, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 102-2, 102-3, 1102, and 2102 Fire Door Hardware

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Opening 2′ 0″ to 4′ 8″ Wide	Opening 4′ 9″ to 5′ 2″ Wide	Opening 5′ 3″ to 7′ 8″ Wide	Opening 7′ 9″ to 8′ 8″ Wide	Opening 8′ 9″ to 11′ 8″ Wide	Opening 11′ 9″ to 13′ 0″ Wide	LENGTH OF BOLTS REQUIRED FOR SETS INSTALLED	
							On One Side of Wall	On Both Sides of Wall
Binders	†4	†4	†4	†4	†4	†4	Wall thickness plus 2″	Wall thickness plus 2″
*Guide Rollers	1	1	1	1	1	1	Wall thickness plus 1″	Wall thickness minus ¾″
End Track Brackets	2	2	2	2	2	2	Wall thickness plus 4″	Wall thickness plus 6″
Center Track Brackets	3	4	5	7	8	9	Wall thickness plus 4′	Wall thickness plus 5″
Rear Binder Hook (in No. 1102 sets only)	§1	§1	§1	§1	§1	§1	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook (in No. 2102 sets only)	§1	§1	§1	§1	§1	§1	Wall thickness minus 2″	Wall thickness minus 7″
Total Bolts in Nos. 102-2, 102-3 sets	10	11	12	14	15	16		
Total Bolts in Nos. 1102 and 2102 sets	11	12	13	15	16	17		

*Wall Bolt not required when No. 102-80 Guide Rollers are Used. †Openings over 8 feet high require 6 bolts. §Openings over 10 feet high require 2 bolts.

Packing List for No. 102-2, 102-3, 1102 and 2102 Fire Door Hardware—Standard Style

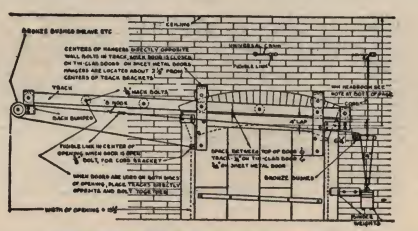
102-2	102-3	1102	2102	DESCRIPTION AND WEIGHT, EACH
1	..	..	..	No. 70-1 Flush Pull, each ..... 14 oz.
..	1	..	1	No. 70-2 Flush Pull, each ..... 1 lb. 2 oz.
1	..	..	..	No. 71-1 Bow Handle, each ..... 5 oz.
..	1	..	1	No. 71-2 Bow Handle, each ..... 6 oz.
..	..	1	..	No. 71-3 Bow Handle, each ..... 9 oz.
..	..	1	..	No. 71-4 Bow Handle, each ..... 10 oz.
1	1	1	1	No. 96 Fusible Link. One additional link is attached to No. 102-97 Link Bracket, each ..... ½ oz.
*	*	*	*	No. 102-SC Sash Cord with wire link attached. (As required), per foot ..... ½ oz.
1 Pr.	..	..	1 Pr.	No. 102-2 Hangers. (Openings over 6′ wide require 1½ pair), per pair ..... 30 lbs.
..	1 Pr.	..	..	No. 102-3 Hangers. (Openings over 6′ wide require 1½ pair), per pair ..... 30 lbs.
1	1	1	1	No. 102-14 Pulley, each ..... 4 oz.
1	1	1	1	No. 102-41 Rope Angle, each ..... 3 oz.
1	1	1	1	No. 102-41 Rope Angle with No. 102-14 Pulley Attached, each ..... 8 oz.
*	*	*	*	No. 102-61 Cast Washers. (See table below). Not required when doors are used on both sides of wall, each ..... 1 lb. 2 oz.
8	8	..	..	No. 102-72 Bumper Shoes, each ..... 6 oz.
1	..	..	..	No. 102-80-2 Guide Roller. (For Angle Iron Sills Only), each ..... 7 lbs.
..	1	1	1	No. 102-80-3 Guide Roller. (For Angle Iron Sills Only), each ..... 7 lbs.
2	2	..	..	No. 102-82 Binder Strip. Length equals width of opening less 4″ per foot ..... ½ lb.
1 Run	1 Run	1 Run	1 Run	No. 102-84 Track. Length equals twice width of opening, Plus 21″, per foot ..... 4½ lbs.
*	*	*	*	No. 102-85 Brackets (See table below), each ..... 1½ lbs.
1	1	1	1	No. 102- 86 Rope Pulley and Back Bumper with trigger, complete ..... 8 lbs.
1	1	1	1	No. 102 86½ Pulley. (Required only when doors are used on both sides of wall), each ..... 2½ lbs.
1	1	1	1	No. 102-87 Front Bumper, each ..... 8 lbs.
1	1	1	1	No. 102-88 Guide Roll Strip. Length equals width of opening plus 3″. (Plus 6″ for 1102) ..... 15 oz.
2	2	..	2	No. 102-89 Chafe Strips, Length equals width of opening less 4″, per foot ..... 5 oz.
1	1	1	1	No. 102-91 Weight Holder, each ..... 6 oz.
2	..	..	2	No. 102-95-2 Binders, each ..... 5½ lbs.
..	2	2	..	No. 102-95-3 Binders, each ..... 6 lbs.
1	1	1	1	No. 102-97 Link Bracket with No. 96 Fusible Link Attached, complete ..... ½ lb.
1	1	1	1	No. 102-98 Wedge, each ..... 7 oz.
*	*	*	*	No. 102-99 No. 1 Lightweights. (According to size of opening), each ..... 5 lbs.
*	*	*	*	No. 102-99 No. 2 Heavyweights. (According to size of opening), each ..... 8½ lbs.
1	..	..	1	†No. 156-2 Guide Roller. (Omit for Angle Iron Sills), each ..... 8 lbs.
..	1	1	..	*No. 156-3 Guide Roller. (Omit for Angle Iron Sills), each ..... 8½ lbs.
..	..	1 Pr.	..	No. 1102 Hangers, with backplates. (Openings over 6′ wide require 1½ pair), per pair ..... 35 lbs.
..	..	2	..	No. 1102-90 Track Binders. (Openings over 6′ wide require 3), each ..... 8 oz.
..	..	§1	..	No. 1102-93 Rear Binder Pocket, each ..... 2 lbs.
..	..	§1	..	No. 1102-94 Rear Binder Hook, each ..... 1¾ lbs.
..	..	..	2	No. 2102 Track Binders. (Openings over 6′ wide require 3), each ..... 8 oz.
..	..	..	§1	No. 2102 Rear Binder Pocket, each ..... 2 lbs.
..	..	..	§1	No. 2102 Rear Binder Hook, each ..... 1¾ lbs.
1	1	1	1	Package Screws and Bolts

†No. 56-2 Boston Guide Roller may be substituted for item listed above if desired.
*No. 56-3 Boston Guide Roller may be substituted for item listed above if desired.
§Nos. 1102 and 2102 require one extra Rear Binder Pocket and Hook if opening is more than 10 feet high.

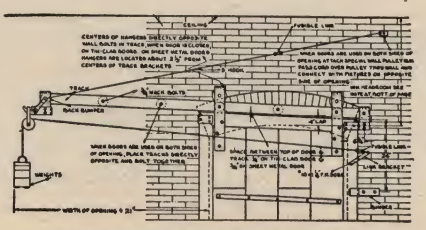
Table of No. 102-85 Brackets and No. 102-61 Washers for Above Fixtures

Width of Opening	NUMBER OF BRACKETS	*Number of Washers	
2′ 0″ to 4′ 8″	5	10	
4′ 9″ to 5′ 2″	6	11	Part Sets
5′ 3″ to 7′ 8″	7	12	Only
7′ 9″ to 8′ 8″	9	14	Require
8′ 9″ to 11′ 8″	10	15	5 Washers
11′ 9″ to 13′ 0″	11	16	

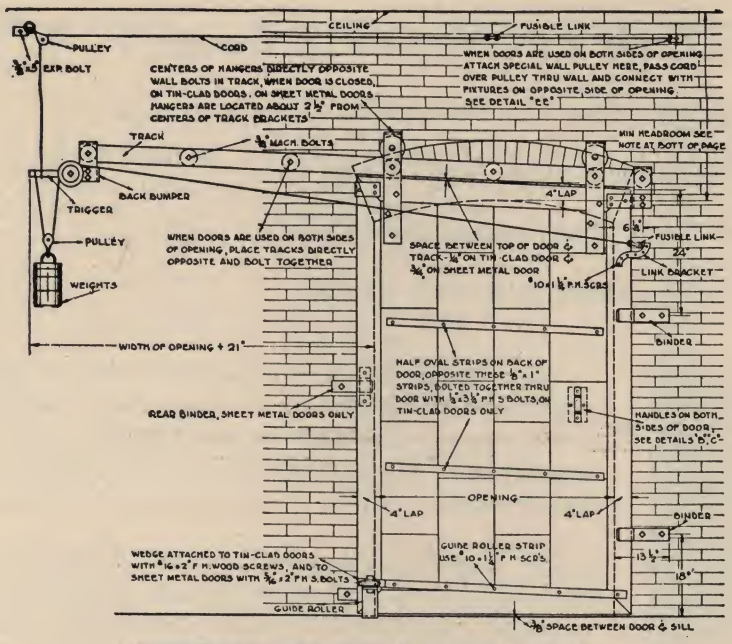
*No. 1102 and No. 2102 Fixtures require one more washer than shown above.



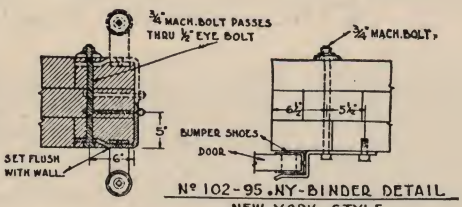
RICHARDS-WILCOX Nº102 FIRE DOOR FIXTURES
PACIFIC STYLE



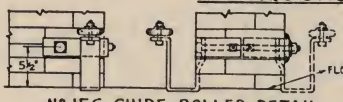
RICHARDS-WILCOX Nº102 FIRE DOOR FIXTURES
ST. LOUIS STYLE



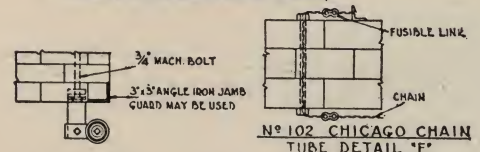
RICHARDS-WILCOX Nº102 FIRE DOOR FIXTURES
STANDARD STYLE



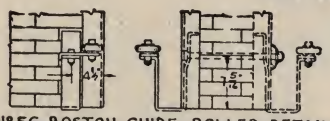
Nº102-95 NY-BINDER DETAIL
NEW YORK STYLE



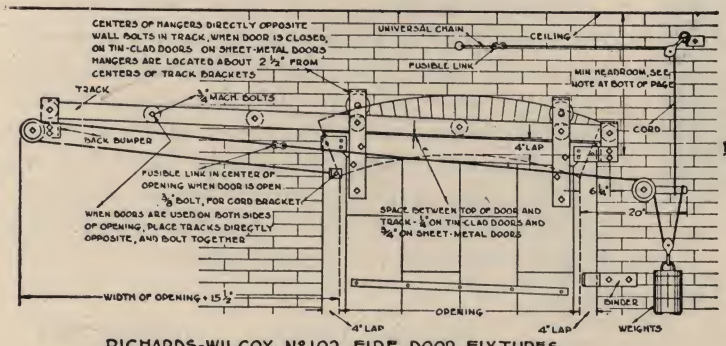
Nº156 GUIDE ROLLER DETAIL
SEE DOTTED LINES FOR DOORS ON BOTH SIDES OF OPENING



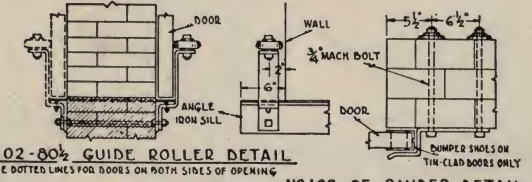
Nº102 CHICAGO CHAIN TUBE DETAIL "F"



Nº56 BOSTON GUIDE ROLLER DETAIL
SEE DOTTED LINES FOR DOORS ON BOTH SIDES OF OPENING

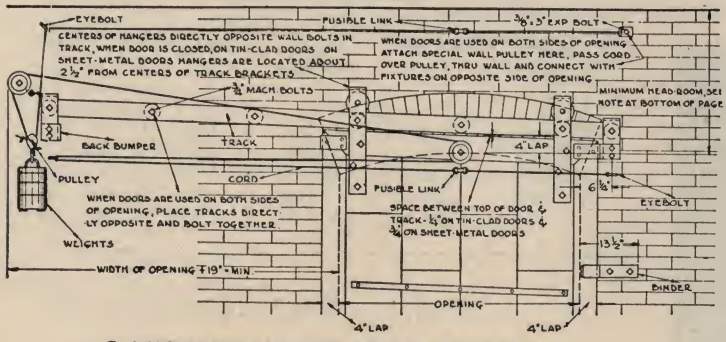


RICHARDS-WILCOX Nº102 FIRE DOOR FIXTURES
CHICAGO STYLE

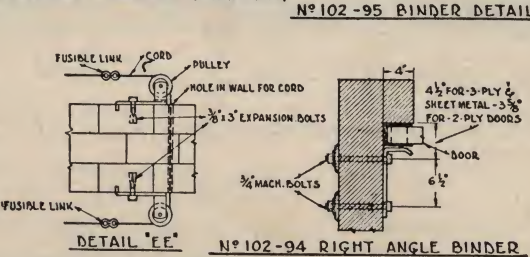


Nº102-80½ GUIDE ROLLER DETAIL
SEE DOTTED LINES FOR DOORS ON BOTH SIDES OF OPENING

Nº102-95 BINDER DETAIL

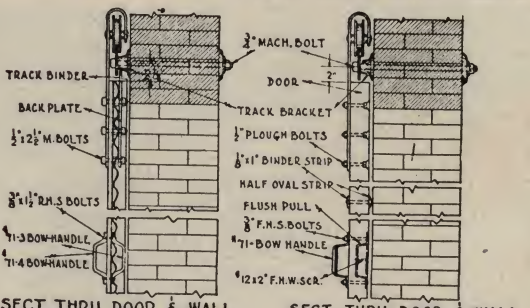


RICHARDS-WILCOX Nº102 FIRE DOOR FIXTURES
CINCINNATI STYLE



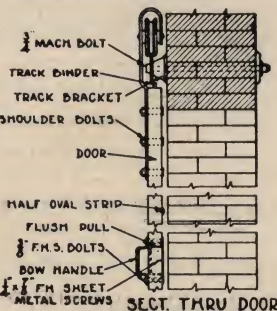
DETAIL "EE"

Nº102-94 RIGHT ANGLE BINDER

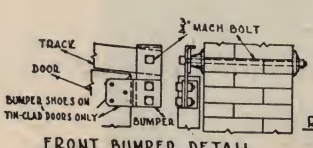


SECT. THRU DOOR & WALL
SHEET METAL DOOR
DETAIL "B"

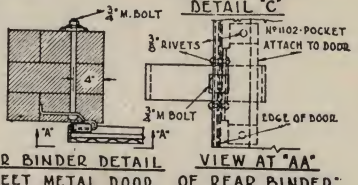
SECT. THRU DOOR & WALL
TIN-CLAD DOOR
DETAIL "C"



SECT. THRU DOOR & WALL
Nº647 DOOR



FRONT BUMPER DETAIL



REAR BINDER DETAIL
SHEET METAL DOOR

VIEW AT "AA"
OF REAR BINDER

For headroom and sidewall requirements see page 249.

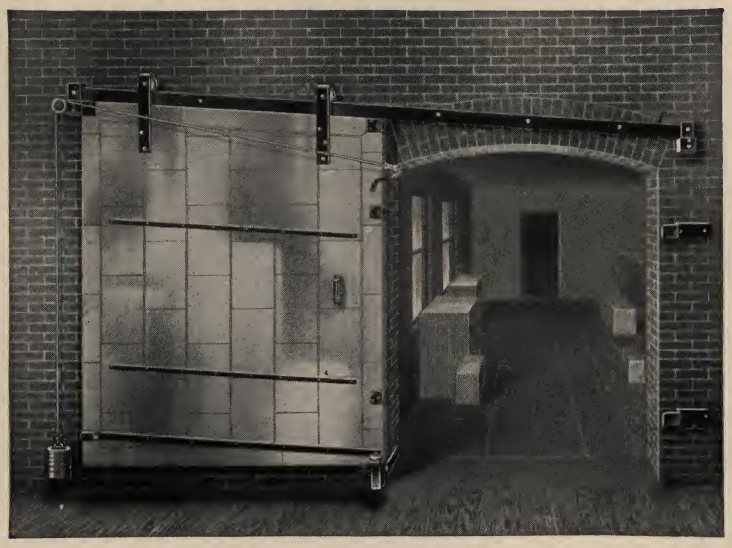
Flat Track, Single Link Fire Door Hardware

No. 201 For Tin Clad Fire Doors

No. 1201 For "FyeR-Wall" Sheet Metal Doors

No. 2201 For "FyeR-Ward" Flat Surface Steel Doors

For Single Sliding Doors, Incline Track



No. 201-2 Hardware for 2-ply (1¾") No. 446-2 Labeled Tin Clad Doors (see page 238).

No. 201-3 Hardware for 3-ply (2½") No. 446-3 Labeled Tin Clad Doors (see page 238).

No. 1201 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors (For Doors see page 236).

This hardware is included in list of Fire Door Hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

This hardware is the same style as the No. 102 shown on page 248, except that the overhead cord arrangement is omitted. This type has but one fusible link which is exposed in the opening.

Shipping weights in the table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for opening 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 201-2, 201-3, 1201 and 2201 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	165	5½ feet	202	8 feet	258
3½ feet	170	6 feet	208	8½ feet	268
4 feet	176	6½ feet	232	9 feet	276
4½ feet	183	7 feet	238	9½ feet	282
5 feet	191	7½ feet	247	10 feet	292

Shipping Weights of Partial Sets

Nos. 201-2, 201-3, 1201 or 2201 AUTOMATICS ONLY; weight per set ..... 25 lbs.

Nos. 201-2, 201-3, 1201 and 2201 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips: weight per set ..... 87 lbs.

*No. 102-2 hangers for No. 201-2 and 2201 hardware, per pair .. 30 lbs.

*No. 102-3 hangers for No. 201-3 hardware, per pair ..... 30 lbs.

*No. 1102 hangers with back plate for No. 1201 hardware, per pair ..... 30 lbs.

No. 102-84 track with brackets (length equals twice width of opening plus 21 inches), per foot ..... 4½ lbs.

*For openings (not doors) over 6 feet wide, Underwriters' require three hangers.

Detail of parts shown on page 254.

Nos. 201, 1201 and 2201 Fire Door Hardware (Continued)

Headroom Requirements

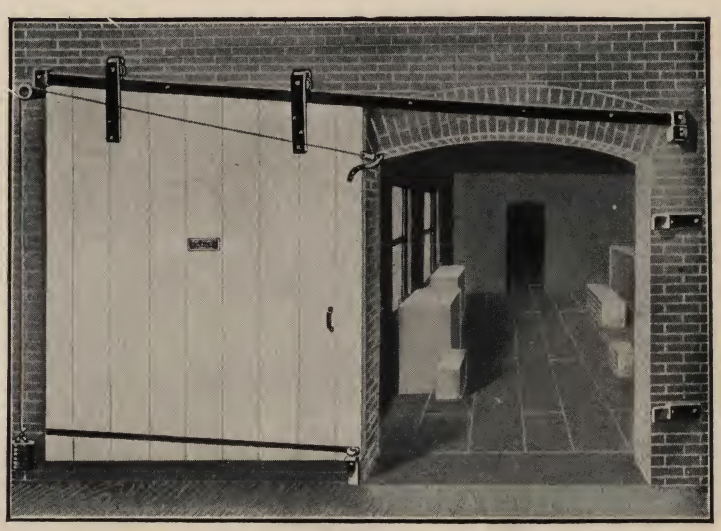
Square Top Openings: Nos. 201-2, or 201-3 hardware require 14 inches of headroom at edge of opening toward which the door slides in closing, plus ¾ inch for each foot of track. Nos. 1201 and 2201 require ½ inch more headroom.

Arched Top Openings: Nos. 201-2 or 201-3 hardware require 14 inches of headroom above top of arch plus ¾ inch for each foot the track extends beyond the center of the opening. Nos. 1201 and 2201 hardware require ½ inch more headroom.

Sidewall Requirements

These sets require 13½ inches on sidewall toward which door closes and width of opening plus 19 inches on opposite side.

Note: When No. 647 doors and No. 2201 hardware is used on openings with steel jambs, the doors must be made wide enough so the back edge will extend four inches beyond the steel jamb. Therefore, the 19 inch dimension will be increased an amount equal to the width of the steel jamb.



No. 2201 Hardware for No. 647
Labeled "FyeR-Ward" Flat Surface Steel Door. (See p. 232)

The automatic devices are standard and will be furnished unless otherwise specified. Other types of automatic closing devices are illustrated on page 251.

Directions For Ordering

(Follow Form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½"), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 201-2, 201-3, 1201 and 2201 Fire Door Hardware—Standard Style

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Opening 2′ 0″ to 4′ 8″ Wide	Opening 4′ 9″ to 5′ 2″ Wide	Opening 5′ 3″ to 7′ 8″ Wide	Opening 7′ 9″ to 8′ 8″ Wide	Opening 8′ 9″ to 11′ 8″ Wide	Opening 11′ 9″ to 13′ 0″ Wide	LENGTH OF BOLTS REQUIRED FOR SETS INSTALLED	
							On One Side of Wall	On Both Sides of Wall
Binders	†4	†4	†4	†4	†4	†4	Wall thickness plus 2″	Wall thickness plus 2″
*Guide Rollers	1	1	1	1	1	1	Wall thickness plus 1″	Wall thickness minus ¾″
End Track Brackets	2	2	2	2	2	2	Wall thickness plus 4″	Wall thickness plus 6″
Center Track Brackets	3	4	5	7	8	9	Wall thickness plus 4″	Wall thickness plus 5″
Rear Binder Hook (in No. 1201 sets only)	§1	§1	§1	§1	§1	§1	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook (in No. 2201 sets only)	§1	§1	§1	§1	§1	§1	Wall thickness minus 2″	Wall thickness minus 7″
Total Bolts in Nos. 201-2 and 201-3 sets	10	11	12	14	15	16		
Total Bolts in Nos. 1201 and 2201 sets	11	12	13	15	16	17		

*Wall Bolt not required when No. 102-80 Guide Rollers are Used. †Openings over 8 feet high require 6 bolts. §Openings over 10 feet high require 2 bolts.

Parts for all Sliding Fire Door Hardware Except No. 104

Nos. 2102-90 Track Binders, 2102-93 Rear Binder Pocket and 2102-94 Rear Binder Hook, not shown.

Weight List

Detail of Parts for Sliding Fire Door Hardware Illustrated on Opposite Page

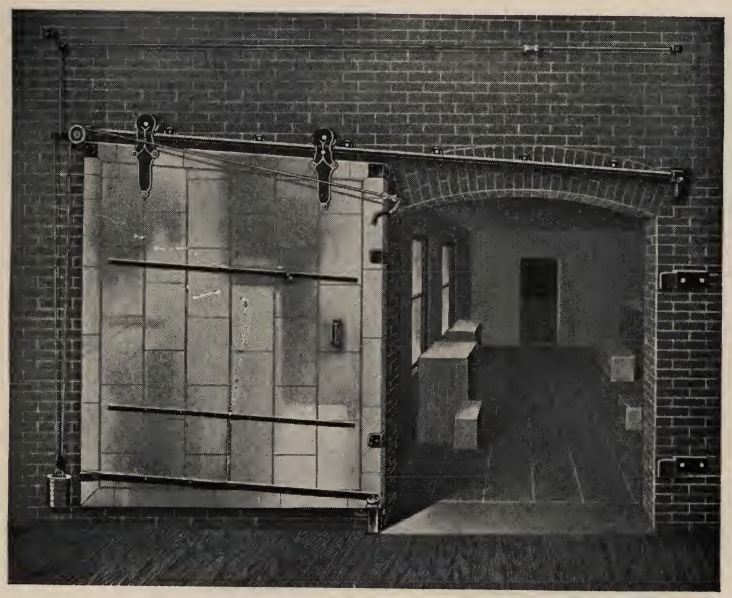
Number	DESCRIPTION	Weight
56-2	Boston Guide Roller for 2-ply Tin Clad Doors, each	11 lbs. 10 oz.
56-3	Boston Guide Roller for 3-ply Tin Clad Doors, each	11 lbs. 15 oz.
70-1	Flush Door Pull for 2-ply Tin Clad Doors, each	14 oz.
70-2	Flush Door Pull for 3-ply Tin Clad Doors, each	1 lb. 2 oz.
71-1	Bow Handle for 2-ply Tin Clad Doors, each	5 oz.
71-2	Bow Handle for 3-ply Tin Clad Doors, each	6 oz.
71-3	Bow Handle for "FyeR-Wall" Sheet Metal Doors, each	9 oz.
71-4	Bow Handle for "FyeR-Wall" Sheet Metal Doors, each	10 oz.
96	Fusible Links, each	½ oz.
102-14	Cord Pulley, each	4 oz.
102-15	Rope Pulley (used with Chicago style only), each	1 lb. 9 oz.
102-14	Cord Pulley assembled with No. 102-41 Rope Angle, each	7 oz.
102-41	Rope Angle, each	3 oz.
102-61	Cast Washers for Wall Bolts, each	1 lb. 2 oz.
102-72	Bumper Shoes, each	6 oz.
102-78	Eye Bolt (for Cincinnati style only), each	10 oz.
102-80-2	Guide Roller for Angle Iron Frames only, for 2-ply Tin Clad Doors, each	6 lbs. 10 oz.
102-80-3	Guide Roller for Angle Iron Frames only, for 3-ply Tin Clad Doors, each	7 lbs.
102-81	Door Pulley (used with Cincinnati style only), each	2 lbs. 1 oz.
102-82	Binder Strips, per foot	7 oz.
102-85	Track Brackets, each	1 lb. 8 oz.
102-86	Rope Pulley and Back Bumper with Trigger, each	8 lbs. 1 oz.
102-86½	Pulley, each	2 lbs. 7 oz.
102-87	Front Bumper, each	5 lbs. 11 oz.
102-88	Guide Roller Strip, per foot	13 oz.
102-89	Chafe Strip, per foot	5 oz.
102-90	Chain Tube (used with Chicago and Pacific style only), each	2 lbs.
102-91	Weight Holders, each	6 oz.
102-92	Pulley and Trigger (used with Chicago style only), each	4 lbs. 14 oz.
102-93	Pulley (used with Cincinnati style only), each	2 lbs. 5 oz.
102-94	Right Angle Binder, each	4 lbs. 4 oz.
102-95-2	Binders for 2-ply Tin Clad Doors, each	5 lbs. 7 oz.
102-95-3	Binders for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	5 lbs. 11 oz.
102-97	Link Bracket, each	8 oz.
102-98	Wedge, each	7 oz.
102-99-1	Lightweight, each	2 lbs. 14 oz.
102-99-2	Heavyweight, each	8 lbs. 5 oz.
102-SC	Sash Cord, per foot	½ oz.
102-UC	Universal Chain, per foot	1 oz.
102-BW	Bronze Wire, per foot	½ oz.
102-SH	S-Hook, each	¼ oz.
102-TH	Trigger Hook, each	½ oz.
102-RL	Rope Link, each	1 oz.
156-U	U-Plate for Guide Rollers (used with doors on both sides of wall for walls under 12" thick), each	4 lbs. 11 oz.
156-2	Guide Roller for 2-ply Tin Clad Doors, each	8 lbs.
156-3	Guide Roller for 3-ply Tin Clad Doors, and "FyeR-Wall" Sheet Metal Doors, each	8 lbs. 6 oz.
171-2	Center Floor Stop for 2-ply Tin Clad Doors, each	3 lbs. 5 oz.
171-3	Center Floor Stop for 3-ply Tin Clad Doors, each	4 lbs. 6 oz.
201-86	Rope Pulley and Back Bumper complete	7 lbs. 8 oz.
201-92	Pulley (used with Chicago style only), each	4 lbs. 8 oz.
203-D	Bracket (used with Chicago style only), each	1 lb.
204-61	Double Washers, each	2 lbs. 2 oz.
204-94	Center Bumpers, right or left, each	1 lb. 6 oz.
204-95-2	Center Binder for 2-ply Tin Clad Doors, each	6 lbs.
204-95-3	Center Binder for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	6 lbs. 7 oz.
206-020	Weight (3 small) with weight holder, each	2 lbs. 8 oz.
302-93	Wall Pulley (Similar to 201-92), each	3 lbs.
303-79	Wall Pulley (used with Chicago style only), each	5 lbs. 10 oz.
303-86	Back Bumper (Chicago style only), each	6 lbs. 6 oz.
303-ST-C	Steel Chain (for closing weights), per foot	1 oz.
304-68	Back Bumper (Chicago style only), each	7 lbs.
304-85-2	End Track Bracket for 2-ply Tin Clad Doors, each	1 lb. 1 oz.
304-85-3	End Track Bracket for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	2 lbs. 10 oz.
304-86	Rope Pulley and Back Bumper, complete	7 lbs. 14 oz.
304-87	Front Bumper, each	6 lbs. 3 oz.
304-DB-2	Drop Brackets for 2-ply Tin Clad Doors, each	10 lbs. 1 oz.
304-DB-3	Drop Brackets for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	10 lbs. 9 oz.
304-SB	Pulley, each	7 oz.
305-93	Wall Pulley (Similar to 201-92), each	3 lbs.
542-CB-2	Center Brackets for 2-ply Tin Clad Doors, each	15 oz.
542-CB-3	Center Brackets for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	1 lb. 2 oz.
542-CJ-2	Joint Brackets for 2-ply Tin Clad Doors, each	1 lb. 3 oz.
542-CJ-3	Joint Brackets for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	1 lb. 15 oz.
604-95-2	Combination Center Bracket and Binder for 2-ply Tin Clad Doors, each	10 lbs. 2 oz.
604-95-3	Combination Center Bracket and Binder for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	10 lbs. 10 oz.
606-EC	Extra Weight (used with Chicago style only), each	1 lb. 11 oz.
645-86-2	Combination End Bracket and Bumper with Trigger, right or left, for 2-ply Tin Clad Doors, each	5 lbs.
645-86-3	Combination End Bracket and Bumper with Trigger, right or left, for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	6 lbs. 1 oz.
645-87-2	Combination End Bracket and Bumper, right or left, for 2-ply Tin Clad Doors, each	3 lbs. 1 oz.
645-87-3	Combination End Bracket and Bumper, right or left, for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	4 lbs. 3 oz.
646-86-2	Combination End Bracket and Bumper, right or left, for 2-ply Tin Clad Doors, each	3 lbs. 1 oz.
646-86-3	Combination End Bracket and Bumper, right or left, for 3-ply Tin Clad Doors and "FyeR-Wall" Sheet Metal Doors, each	4 lbs. 3 oz.
646-16	Pulley (used with St. Louis and Pacific style), each	1 lb. 14 oz.
646-183	*Trigger (used with St. Louis and Pacific style), each	1 lb. 4 oz.
706-5	Heavyweight (used with Chicago style only), each	6 lbs.
1102-90	Track Binders (used with "FyeR-Wall" Sheet Metal Doors only), each	8 oz.
1102-93	Rear Binder Pocket (used with "FyeR-Wall" Sheet Metal Doors only), each	1 lb. 14 oz.
1102-94	Rear Binder Hook (used with "FyeR-Wall" Sheet Metal Doors only), each	1 lb. 12 oz.
2102-90	Track Binders (Similar to 1102-90), each	9 oz.
2102-93	Rear Binder Pocket (Similar to 1102-93), each	1 lb. 6 oz.
2102-94	Rear Binder Hook (Similar to 1102-94), each	5 lbs. 15 oz.

Note; State whether hardware is desired for right or left hand door.
*With Brass Bushing.

Round Track, Two Link Fire Door Hardware

No. 645 for Tin Clad Fire Doors
No. 1645 for "FyeR-Wall" Sheet Metal Doors
No. 2645 for "FyeR-Ward" Flat Surface Steel Doors

For Single Sliding Doors, Incline Track



No. 645-2 Hardware for 2-ply (1¾")

No. 446—2 Labeled Tin Clad Doors (see p. 238)

No. 645-3 Hardware for 3-ply (2½")

No. 446-3 Labeled Tin Clad Doors (see p. 238)

No. 1645 Hardware for No. 447 or 347
Labeled "FyeR-Wall" Sheet Metal Doors (see p. 236)

This hardware is included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

We recommend this hardware where headroom exceeds 3 feet.

This arrangement of automatic device provides two fusible links—one constantly in opening and exposed from both sides, and one link near ceiling. If either link fuses, door is released and closes by gravity. If doors are used on both sides of wall, the cord can be made to pass through wall near ceiling, at points where it is shown attached to the wall in illustration, and same arrangement continued on the other side, thus providing four links. The fusing of any one of the four links releases both doors.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 645-2, 645-3, 1645 and 2645 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3 feet	147	5½ feet	181	8 feet	223
3½ feet	154	6 feet	185	8½ feet	229
4 feet	160	6½ feet	203	9 feet	236
4½ feet	167	7 feet	210	9½ feet	242
5 feet	175	7½ feet	217	10 feet	250

Shipping Weights of Partial Sets

Nos. 645-2, 645-3, 1645, or 2645 AUTOMATICS ONLY; weight per set 45 lbs.

Nos. 645-2, 645-3, 1645, or 2645 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set 100 lbs.

*No. 542-C-2 Hangers with back plates used with Nos. 645-2 hardware; per pair 25 lbs.

*No. 542-C-3 Hangers used with No. 645-3 hardware; per pair 25 lbs.

*No. 742 Hangers with back plates for No. 1645 hardware, per pair 25 lbs.

*No. 2641 Hangers, used with No. 2645 hardware, per pair 25 lbs.

No. 542-C Track with brackets, per foot 2¼ lbs.

(Length of track equals twice width of opening plus 15½ inches.)

*For openings (not doors) over 6 feet wide, Underwriters require three hangers.

Detail of parts shown on page 254.

Nos. 645, 1645 and 2645 Fire Door Hardware (Continued)

Headroom Requirements

Square Top Openings: Nos. 645-2 or 645-3 hardware require of 12 inches head room at edge of openings toward which the door slides in closing, plus ¾ inch for each foot of track. Nos. 1645 and 2645 require ½ inch more headroom.

Arched Top Openings: Nos. 645-2 or 645-3 hardware require 12 inches of headroom above the top of arch plus ¾ inch for each foot the track extends beyond the center of opening. Nos. 1645 and 2645 require ½ inch more headroom.

Sidewall Requirements

These sets require 13½ inches on sidewall toward which door closes, and width of opening plus 17 inches on opposite side. When No. 647 doors and No. 2645 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend 4 inches beyond the steel jambs. Therefore, the 17 inch dimension will be increased an amount equal to the width of the steel jambs.

No. 2645 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door (See page 232).

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified. Other types of automatic closing devices are illustrated on page 251.

Directions for Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 645-2, 645-3, 1645 and 2645 Fire Door Hardware

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Openings Up to 3′ 0″ Wide	Openings 3′ 1″ to 4′ 6″ Wide	Openings 4′ 7″ to 6′ 0″ Wide	Openings 6′ 1″ to 6′ 8″ Wide	Openings 6′ 9″ to 8′ 8″ Wide	Openings 8′ 9″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 4″ Wide	Openings 10′ 5″ to 12′ 1″ Wide	Openings 12′ 2″ to 14′ 0″ Wide	Length of Bolts Required For Sets Installed	
										On One Side of Wall	On Both Sides of Wall
										Equals Wall Thickness	
Binders	†4	†4	†4	†4	†4	†4	†4	†4	†4	Plus 2″	Plus 2″
*Guide Rollers	1	1	1	1	1	1	1	1	1	Plus 1″	Minus ¾″
End Brackets and Bumpers	2	2	2	2	2	2	2	2	2	Plus 2¼″	Plus 2¼″
Center and Joint Brackets	4	5	6	8	9	10	12	13	14	Plus 2″	Plus 2″
Rear Binder Hook (in No. 1645 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Plus 1″	Minus ¾″
Rear Binder Hook (in No. 2645 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Minus 2″	Minus 7″
Total Bolts in Nos. 645-2, 645-3 sets	11	12	13	15	16	17	19	20	21		
Total Bolts in Nos. 1645 and 2645 sets	12	13	14	16	17	18	20	21	22		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8 feet high require 6 bolts. §Openings over 10 feet high require 2 bolts.

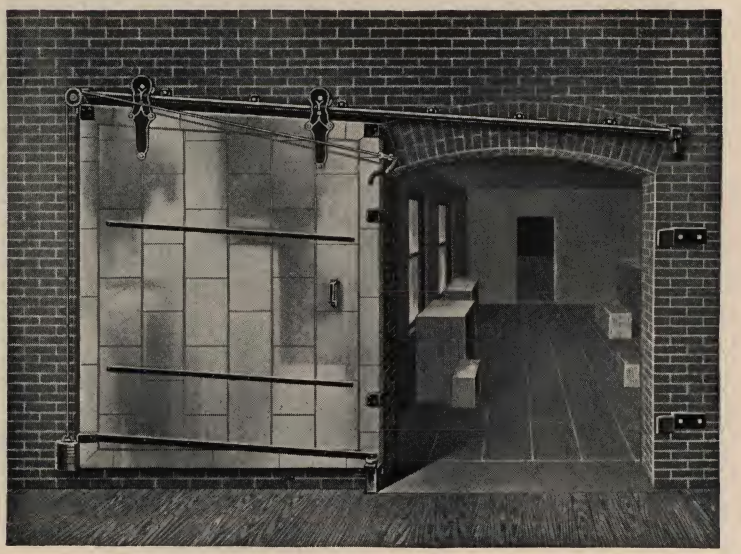
Round Track, Single Link Fire Door Hardware

No. 646 for Tin Clad Fire Doors

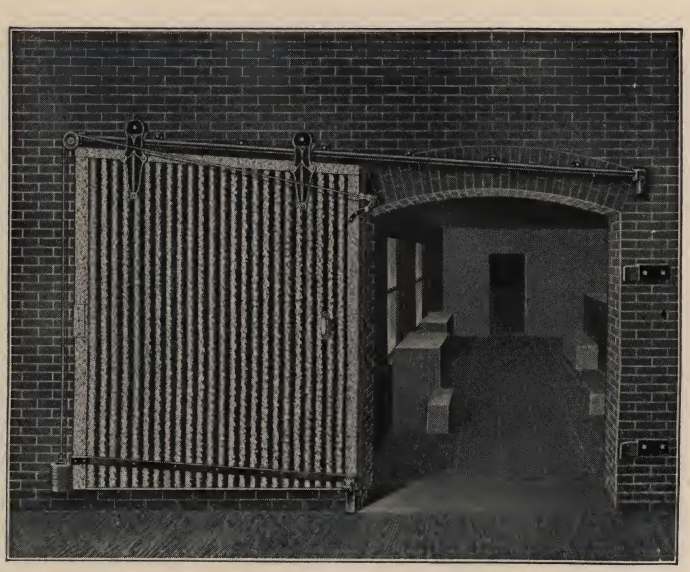
No. 1646 for "FyeR-Wall" Sheet Metal Doors

No. 2646 for "FyeR-Ward" Flat Surface Steel Doors

For Single Sliding Doors, Incline Track



No. 646-2 Hardware for 2-ply (1¾")
No. 446-2 Labeled Tin Clad Doors (see page 238)
No. 646-3 Hardware for 3-ply (2½")
No. 446-3 Labeled Tin Clad Doors (see page 238)



No. 1646 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors (see page 236).

This hardware is included in list of Fire Door Hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

This hardware is the same style as No. 645 shown on page 256 except that the overhead cord arrangement is omitted. This type has but one fusible link which is exposed in the opening.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 646-2, 646-3, 1646 and 2646 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	142	5½ feet	164	8 feet	201
3½ feet	149	6 feet	170	8½ feet	204
4 feet	152	6½ feet	185	9 feet	210
4½ feet	155	7 feet	191	9½ feet	214
5 feet	160	7½ feet	197	10 feet	218

Shipping Weights of Partial Sets

Nos. 646-2, 646-3, 1646, or 2646 AUTOMATICS only; weight per set ..... 25 lbs.

Nos. 646-2, 646-3, 1646, or 2646 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set ..... 90 lbs.

*No. 542-C-2 Hangers with back plates used with No. 646-2 hardware; per pair ..... 25 lbs.

*No. 542-C-3 Hangers used with No. 646-3 hardware; per pair ..... 25 lbs.

*No. 742 Hangers with back plates for No. 1646 Hardware, per pair ..... 25 lbs.

*No. 2641 Hangers used with No. 2646 Hardware, per pair ..... 25 lbs.

No. 542-C Track with brackets per foot ..... 2¼ lbs. (Length of track equals twice width of opening plus 15½ inches).

*For openings (not doors) over 6 feet wide, Underwriters' require three hangers.

Detail of parts shown on page 254.

Nos. 646, 1646 and 2646 Fire Door Hardware (Continued)

Headroom Requirements

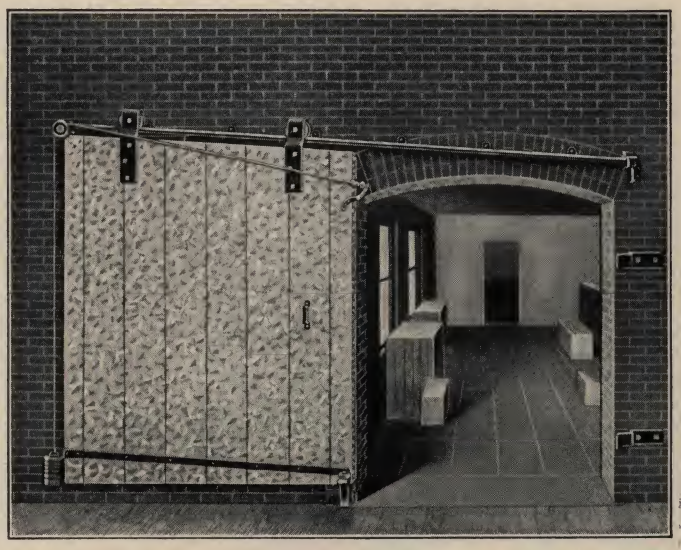
Square Top Openings: Nos. 646-2 or 646-3 hardware require 12 inches of headroom at edge of opening toward which the door slides in closing, plus ¾ inch for each foot of track. Nos. 1646 and 2646 require ½ inch more headroom.

Arched Top Openings: Nos. 646-2 or 646-3 hardware require 12 inches of headroom above the top of arch plus ¾ inch for each foot the track extends beyond the center of opening. Nos. 1646 and 2646 require ½ inch more headroom.

Sidewall Requirements

These sets require 13½ inches on sidewall toward which door closes, and width of opening plus 15½ inches on opposite side.

Note: When No. 647 doors and No. 2646 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend 4 inches beyond the steel jamb. Therefore, the 15½ inch dimension will be increased an amount equal to the width of the steel jamb.



No. 2646 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door (See page 232).

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified. Other types of automatic closing devices are illustrated on page 251.

Directions For Ordering
(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 646-2, 646-3, 1646 and 2646 Fire Door Hardware, Standard Style

NUMBER OF ¼-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Openings Up to 3′ 0″ Wide	Openings 3′ 1″ to 4′ 6″ Wide	Openings 4′ 7″ to 6′ 0″ Wide	Openings 6′ 1″ to 6′ 8″ Wide	Openings 6′ 9″ to 8′ 8″ Wide	Openings 8′ 9″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 4″ Wide	Openings 10′ 5″ to 12′ 1″ Wide	Openings 12′ 2″ to 14′ 0″ Wide	Length of Bolts Required For Sets Installed	
										On One Side of Wall	On Both Sides of Wall
										Equals Wall Thickness	
Binders	†4	†4	†4	†4	†4	†4	†4	†4	†4	Plus 2″	Plus 2″
*Guide Rollers	1	1	1	1	1	1	1	1	1	Plus 1″	Minus ¾″
End Brackets and Bumpers	2	2	2	2	2	2	2	2	2	Plus 2¼″	Plus 2¼″
Center and Joint Brackets	4	5	6	8	9	10	12	13	14	Plus 2″	Plus 2″
Rear Binder Hook (in No. 1646 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Plus 1″	Minus ¾″
Rear Binder Hook (in No. 2646 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Minus 2″	Minus 7″
Total Bolts in Nos. 646-2, 646-3 Sets	11	12	13	15	16	17	19	20	21		
Total Bolts in Nos. 1646 and 2646 Sets	12	13	14	16	17	18	20	21	22		

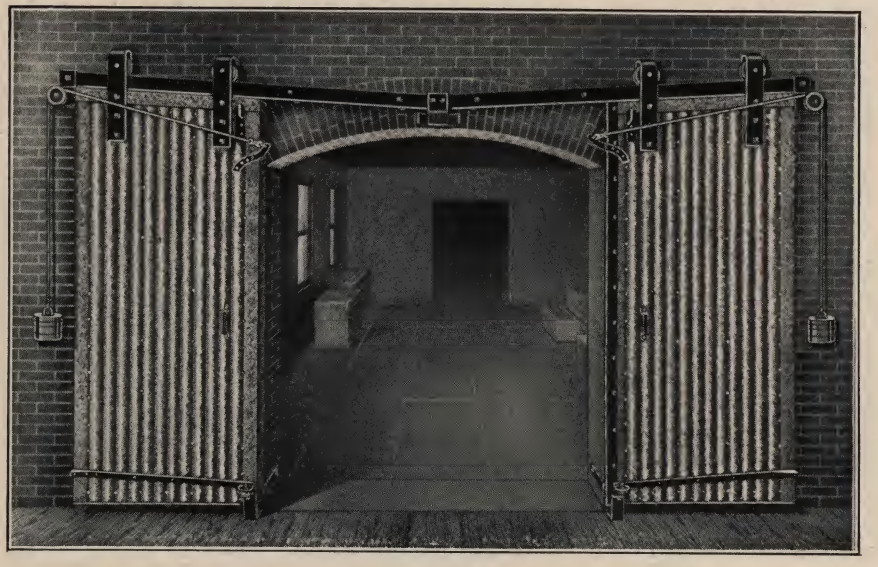
*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8 feet high, require 6 bolts. §Openings over 10 feet high, require 2 bolts.

Flat Track, Single Link Fire Door Hardware

No. 204 For Tin Clad Doors
No. 1204 For "FyeR-Wall" Sheet Metal Doors
No. 2204 For "FyeR-Ward" Flat Surface Steel Doors

For Sliding Doors In Pairs, Incline Track

No. 204-2 Hardware for 2-ply (1¾") No. 446-2 Tin Clad Doors
(see page 238)
No. 204-3 Hardware for 3-ply (2½") No. 446-3 Tin Clad Doors
(see page 238)



No. 1204 Hardware for 447 or 347 "FyeR-Wall" Sheet Metal Doors
(see page 236)

Underwriters do not permit labeling biparting doors, therefore, the local inspector should be consulted before purchase is made.

This hardware is the same as No. 201 shown on page 252 except that it is applied to pairs of doors. It has been designed to meet special conditions, such as not sufficient space on one side to slide a large door, or if an overhead carrier system track passes through the opening. This type has one fusible link on each door and both are exposed in the opening.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 204-2, 204-3, 1204 and 2204 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	230	7 feet	292
3½ feet	235	7½ feet	297
4 feet	241	8 feet	303
4½ feet	258	8½ feet	308
5 feet	264	9 feet	326
5½ feet	269	9½ feet	331
6 feet	275	10 feet	337
6½ feet	286		

Shipping Weights Of Partial Sets

Nos. 204-2, 204-3, 1204, or 2204 AUTOMATICS ONLY; weight per set ..... 31 lbs.
Nos. 204-2, 204-3, 1204, or 2204 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set ..... 100 lbs.
No. 102-2 hangers for Nos. 204-2 and 2204 hardware; per pair ..... 30 lbs.
No. 102-3 hangers for No. 204-3 hardware; per pair ..... 30 lbs.
No. 1102 hangers with back plates for No. 1204 hardware; per pair ..... 30 lbs.
No. 204-84 track with brackets (length equals width of opening plus 8 inches); per foot ..... 4½ lbs.
Astragals (3/16" x 3") can be furnished when requested. Weight per foot ..... 2 lbs.

Detail of parts shown on page 254.

Nos. 204, 1204 and 2204 Fire Door Hardware (Continued)

Headroom Requirements

Square Top Openings: Nos. 204-2 or 204-3 hardware require 14 inches of headroom at center of opening, plus ¾ inch for each foot the track extends beyond center of opening. Nos. 1204 and 2204 require ½ inch more headroom.

Arched Top Openings: Nos. 204-2 or 204-3 hardware require 14 inches of headroom above top of arch, plus ¾ inch for each foot the track extends beyond center of opening. Nos. 1204 and 2204 hardware require ½ inch more headroom.

Sidewall Requirements

These sets require one-half width of opening plus 15 inches wall space on each side of opening. **Note:** When No. 647 doors and No. 2204 hardware is used on openings with steel jambs, the doors must be made wide enough so the back edge will extend 4 inches beyond the steel jambs. Therefore, the 15 inch dimension will be increased an amount equal to the width of the steel jambs.

No. 2204 Hardware for No. 647 "FyeR-Ward" Flat Surface Steel Door (see page 232)

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified. Other types of automatic closing devices are illustrated on page 251.

Directions For Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolt required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 204-2, 204-3, 1204 and 2204 Fire Door Hardware, Standard Style

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Openings 4′ 0″ to 4′ 5″ Wide	Openings 4′ 6″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 6″ Wide	Openings 10′ 7″ to 13′ 0″ Wide	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
* Guide Rollers	2	2	2	2	Wall thickness plus 1″	Wall thickness minus ¾″
Center Track Brackets	6	8	10	12	Wall thickness plus 4″	Wall thickness plus 5″
End Track Brackets	2	2	2	2	Wall thickness plus 4″	Wall thickness plus 6″
Rear Binder Hook (in 1204 set only)	§2	§2	§2	§2	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook (in 2204 set only)	§2	§2	§2	§2	Wall thickness minus 2″	Wall thickness minus 7″
Total Bolts in Nos. 204-2 and 204-3 sets	10	12	14	16		
Total Bolts in Nos. 1204 and 2204 sets	12	14	16	18		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. §Openings over 10 feet high require 4 bolts.

Round Track, Single Link Fire Door Hardware

No. 604 For Tin Clad Fire Doors
No. 1604 For "FyeR-Wall" Sheet Metal Doors
No. 2604 For "FyeR-Ward" Flat Surface Steel Doors

For Sliding Doors In Pairs, Incline Track

No. 604-2 Hardware for 2-ply (1¾") No. 446-2 Tin Clad Doors
(see page 238)
No. 604-3 Hardware for 3-ply (2½") No. 446-3 Tin Clad Doors
(see page 238)

No. 1604 Hardware for 447 or 347 "FyeR-Wall" Sheet Metal Doors
(see page 236)

Underwriters do not permit labeling biparting doors, therefore, the local inspector should be consulted before purchase is made.

This hardware is the same as No. 646 illustrated on pages 258 and 259, except that it is applied to pairs of doors.

Designed to meet special conditions, such as not sufficient space on one side to slide a large door, or if an overhead carrier system track passes through the opening.

This type has one fusible link on each door and both are exposed in the opening.

Shipping weights in table below include hangers, track, and hardware for doors when used on one side of wall only. If doors are to be used on both sides of wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts, and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 604-2, 604-3, 1604 and 2604 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	195	7 feet	242
3½ feet	198	7½ feet	255
4 feet	206	8 feet	257
4½ feet	209	8½ feet	266
5 feet	216	9 feet	268
5½ feet	220	9½ feet	280
6 feet	224	10 feet	282
6½ feet	240		

Shipping Weights of Partial Sets

Nos. 604-2, 604-3, 1604 or 2604 AUTOMATICS ONLY; weight per set ..... 31 lbs.
Nos. 604-2, 604-3, 1604 or 2604 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set ..... 100 lbs.
No. 542-C-2 hangers only with back plates, used with No. 604-2 hardware; per pair ..... 25 lbs.
No. 542-C-3 hangers only used with No. 604-3 hardware; per pair ..... 25 lbs.
No. 742 hangers with back plates, used with No. 1604 hardware; per pair ..... 25 lbs.
No. 2641 hangers used with No. 2604 hardware; per pair ..... 25 lbs.
*No. 542-C track with brackets; per foot ..... 2¼ lbs.
Astragals (3/16" x 3") can be furnished when requested. Weight per foot ..... 2 lbs.
*Length of each track equals width of opening plus 7 inches.
Detail of parts shown on page 254.

No. 604, 1604 and 2604 Fire Door Hardware (Continued)

No. 2604 Hardware for No. 647 "FyeR-Ward" Flat Surface Steel Door (see page 232)

Headroom Requirements

Square Top Openings: Nos. 604-2 or 604-3 hardware require 12 inches of headroom at center of opening, plus ¾ inch for each foot track extends beyond center of opening. Nos. 1604 and 2604 require ½ inch more headroom.

Arched Top Openings: Nos. 604-2 or 604-3 hardware require 12 inches of headroom above the top of arch, plus ¾ inch for each foot the track extends beyond center of opening. Nos. 1604 and 2604 hardware require ½ inch more headroom.

Sidewall Requirements

These sets require one-half width of opening plus 11½ inches wall space on each side of opening. NOTE: When No. 647 doors and No. 2604 hardware is used on openings with steel jambs, the doors must be made wide enough so the back edge will extend 4 inches beyond the steel jamb. Therefore, the 11½ inch dimension will be increased an amount equal to the width of the steel jamb.

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified.

Directions For Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest point of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 604-2, 604-3, 1604 and 2604 Fire Door Hardware, Standard Style

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

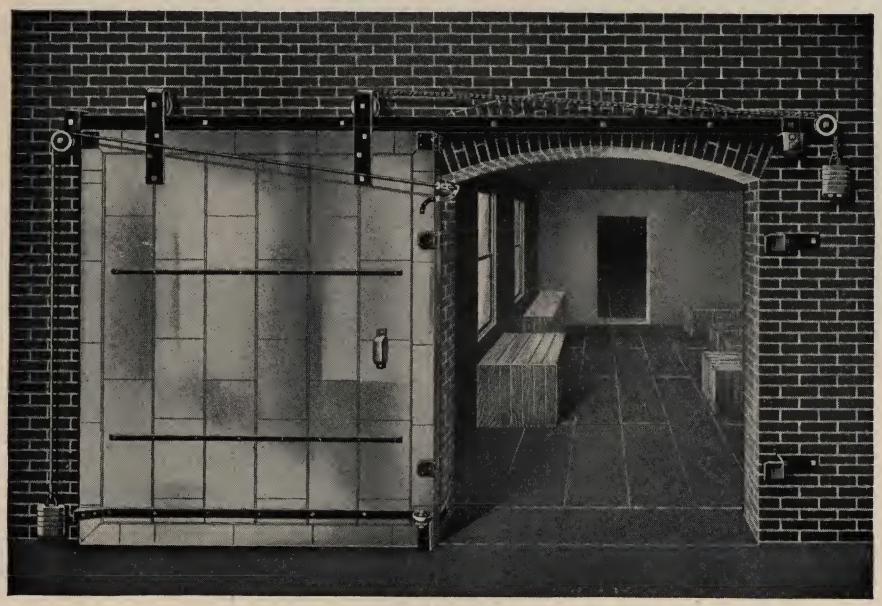
Machine Bolts Used to Fasten	Openings 4′ 0″ to 6′ 2″ Wide	Openings 6′ 3″ to 9′ 9″ Wide	Openings 9′ 10″ to 12′ 8″ Wide	Openings 12′ 9″ to 14′ 0″ Wide	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
					Equals Wall Thickness	
Combination Center Bracket and Binder	1	1	1	1	Plus 5″	Plus 9″
*Guide Rollers	2	2	2	2	Plus 1″	Minus ¾″
Center and Joint Brackets	6	10	12	16	Plus 2″	Plus 2″
End Brackets and Bumpers	2	2	2	2	Plus 2¼″	Plus 2¼″
Rear Binder Hooks (in No. 1604 sets only)	§2	§2	§2	§2	Plus 1″	Minus ¾″
Rear Binder Hooks (in No. 2604 sets only)	§2	§2	§2	§2	Minus 2″	Minus 3½″
Total Bolts in Nos. 604-2, 604-3 sets	11	15	17	21		
Total Bolts in Nos. 1604 and 2604 sets	13	17	19	23		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. §Openings over 10 feet high require 4 bolts.

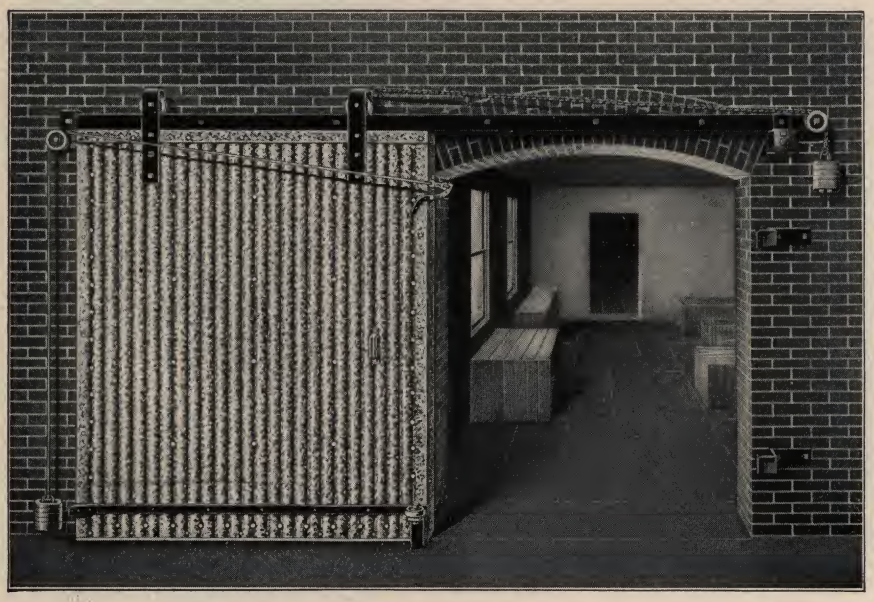
Flat Track, Single Link Fire Door Hardware

No. 303 For Tin Clad Doors
No. 1303 For "FyeR-Wall" Sheet Metal Doors
No. 2303 For "FyeR-Ward" Flat Surface Steel Doors

For Single Sliding Doors, Level Track



No. 303-2 Hardware for 2-ply (1¾"), No. 446-2 Labeled Tin Clad Doors. (See page 238)
No. 303-3 Hardware for 3-ply (2½"), No. 446-3 Labeled Tin Clad Doors. (See page 238)



No. 1303 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors (See page 236)

This hardware is included in list of Fire Door Hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

This style of hardware is used for openings where there is not enough headroom to place the track on an incline of ¾ inch to the foot. Two sets of weights are used to balance the door. The back weights are held in position by a fusible link. In case of fire this link fuses and allows back weights to drop and the front weights then pull the door shut.

This hardware is the same style as No. 201 shown on page 252, except that it operates on level track. This type has but one fusible link, which is exposed in the opening.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 303-2, 303-3, 1303 and 2303 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	182	7 feet	259
3½ feet	188	7½ feet	265
4 feet	202	8 feet	273
4½ feet	208	8½ feet	279
5 feet	213	9 feet	293
5½ feet	225	9½ feet	299
6 feet	233	10 feet	304
6½ feet	254		

Shipping Weights Of Partial Sets

Nos. 303-2, 303-3, 1303 or 2303 AUTOMATICS only; weight per set ..... 59 lbs.
Nos. 303-2, 303-3, 1303 or 2303 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set ..... 119 lbs.
*No. 303-2 hangers for Nos. 303-2 and 2303 hardware; per pair ..... 30 lbs.
*No. 303-3 hangers for No. 303-3 hardware; per pair ..... 30 lbs.
*No. 1303 hangers with back plates for No. 1303 hardware; weight per pair ..... 30 lbs.
No. 303x84 track with brackets (length equals twice width of opening plus 29 inches), per foot ..... 4½ lbs.
*For openings (not doors) over 6 feet wide, Underwriters require three hangers.
Detail of parts shown on page 254.

Nos. 303, 1303 and 2303 Fire Door Hardware (Continued)

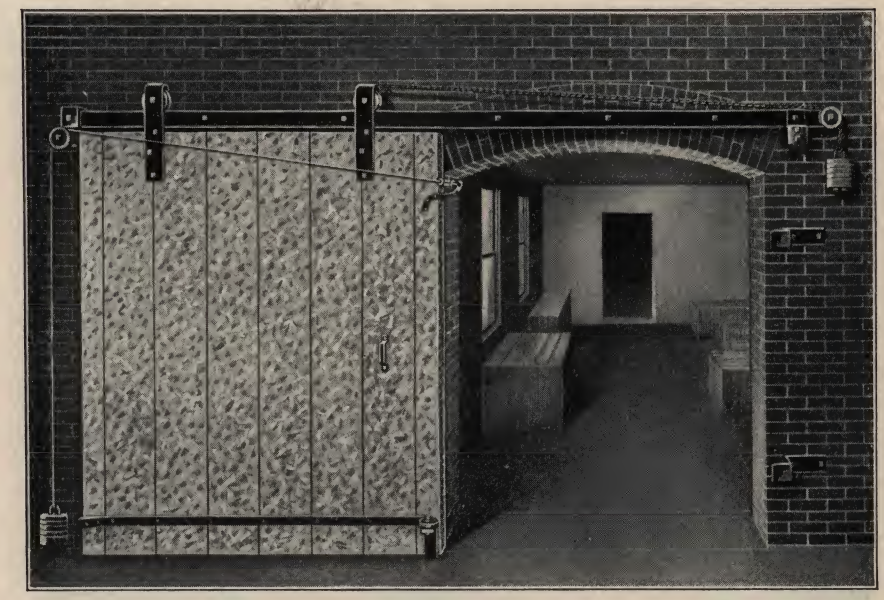
Headroom Requirements

Nos. 303-2 and 303-3 hardware require 14 inches of headroom. Nos. 1303 and 2303 require 14½ inches.

Sidewall Requirements

These sets require 20 inches on sidewall toward which door closes, and width of opening plus 19 inches on opposite side. **Note:** When No. 647 doors and No. 2303 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend 4 inches beyond the steel jamb. Therefore, the 19 inch dimension will be increased an amount equal to the width of the steel jamb.

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified.



No. 2303 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door
(See page 232)

Directions For Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The tables below give the number and size of bolts required for the various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 303-2, 303-3, 1303 and 2303 Fire Door Hardware, Standard Style

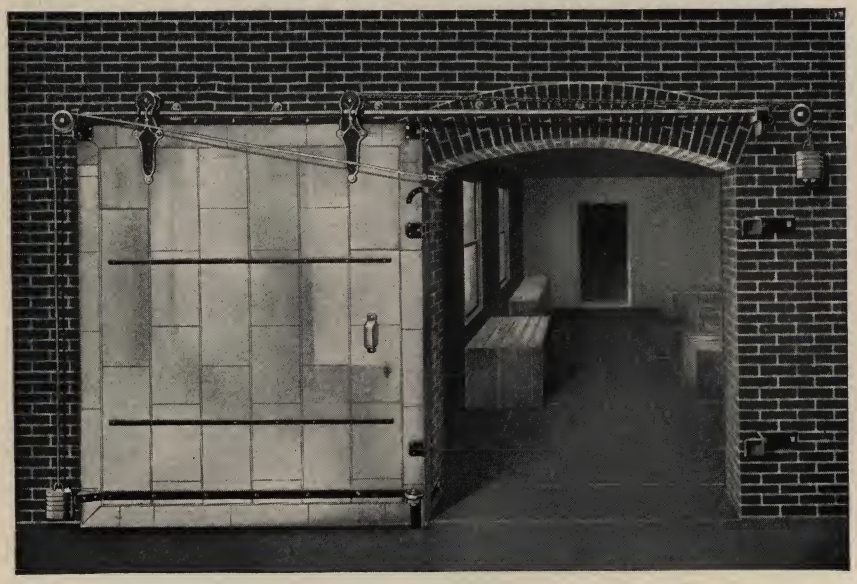
NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Opening 2′ 0″ to 4′ 8″	Opening 4′ 9″ to 5′ 2″	Opening 5′ 3″ to 7′ 8″	Opening 7′ 9″ to 8′ 8″	Opening 8′ 9″ to 11′ 8″	Opening 11′ 9″ to 13′ 0″	Length of Bolts Required for Sets Installed	
							On One Side of Wall	On Both Sides of Wall
Binders	†4	†4	†4	†4	†4	†4	Wall thickness plus 2″	Wall thickness plus 2″
*Guide Rollers	1	1	1	1	1	1	Wall thickness plus 1″	Wall thickness minus ¾″
End Track Brackets	2	2	2	2	2	2	Wall thickness plus 4″	Wall thickness plus 6″
Center Track Brackets	3	4	5	7	8	9	Wall thickness plus 4″	Wall thickness plus 5″
Rear Binder Hook for No. 1303 sets only	§1	§1	§1	§1	§1	§1	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook for No. 2303 sets only	§1	§1	§1	§1	§1	§1	Wall thickness minus 2″	Wall thickness minus 7″
Total Bolts in No. 303-2 and No. 303-3 sets	10	11	12	14	15	16		
Total Bolts in No. 1303 and 2303 sets	11	12	13	15	16	17		

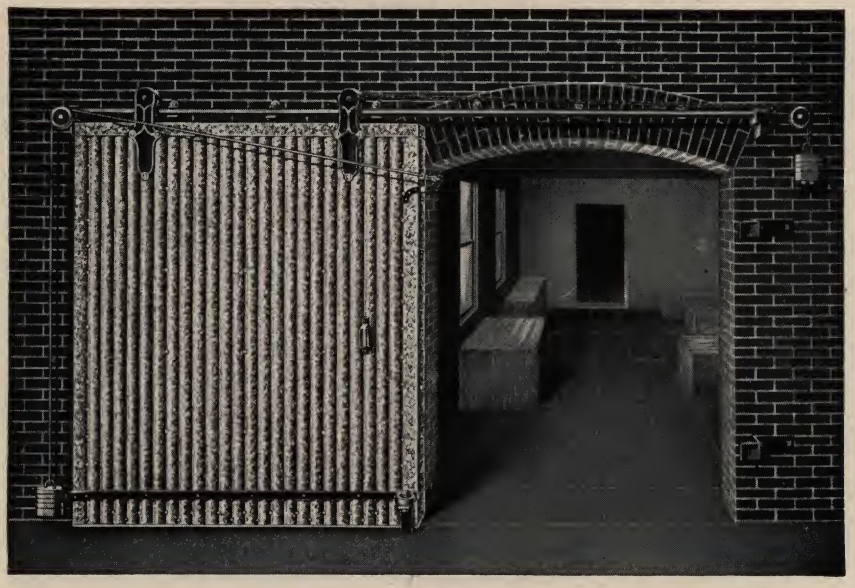
*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8 feet high require 6 bolts. §Openings over 10 feet high require 2 bolts.

Round Track, Single Link Fire Door Hardware

No. 641 For Tin Clad Doors
No. 1641 For "FyeR-Wall" Sheet Metal Doors
No. 2641 For "FyeR-Ward" Flat Surface Steel Doors
For Single Sliding Doors, Level Track



No. 641-2 Hardware for 2-ply (1¾"), No. 446-2 Labeled Tin Clad Doors
(See page 238)
No. 641-3 Hardware for 3-ply (2½"), No. 446-3 Labeled Tin Clad Doors
(See page 238)



No. 1641 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors
(See page 236)

This hardware is included in list of Fire Door Hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

This style of hardware is used for openings where there is not enough headroom to place the track on an incline of ¾ inch to the foot. Two sets of weights are used to balance the door. The back weights are held in position by a fusible link. In case of fire this link fuses and allows back weights to drop and the front weights then pull the door shut.

This hardware is the same style as No. 646 shown on pages 258 and 259, except that it operates on level track. This type has but one fusible link, which is exposed in the opening.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 641-2, 641-3, 1641 and 2641 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	160	7 feet	237
3½ feet	166	7½ feet	243
4 feet	180	8 feet	251
4½ feet	186	8½ feet	257
5 feet	191	9 feet	271
5½ feet	203	9½ feet	278
6 feet	211	10 feet	283
6½ feet	232		

Shipping Weights of Partial Sets

Nos. 641-2, 641-3, 1641 or 2641 AUTOMATICS only; weight per set ..... 59 lbs.
Nos. 641-2, 641-3, 1641 or 2641 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set ..... 127 lbs.
*No. 641-2 hangers only with back plates for No. 641-2 hardware; weight per pair ..... 25 lbs.
*No. 641-3 hangers only used with No. 641-3 hardware; weight per pair ..... 25 lbs.
*No. 1641 hangers with back plates used with No. 1641 hardware; weight per pair ..... 25 lbs.
*No. 2641 hangers for No. 2641 hardware; weight per pair ..... 25 lbs.
No. 542-C track with brackets (length equals twice width of opening plus 15½"), per foot ..... 2¼ lbs.

*For openings (not doors) over 6 feet wide, Underwriters require three hangers.
Detail of parts shown on page 254.

Nos. 641, 1641 and 2641 Fire Door Hardware (Continued)

Headroom Requirements

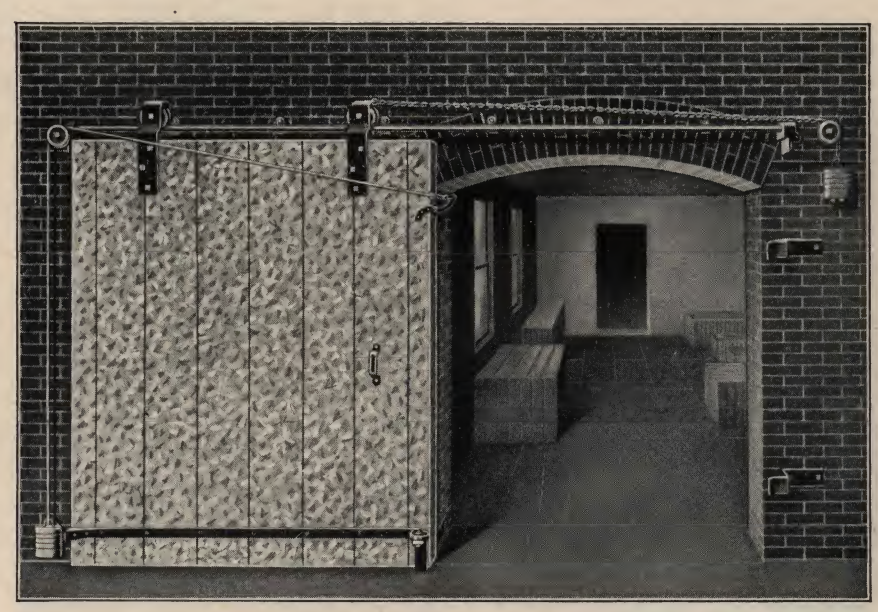
Nos. 641-2 and 641-3 hardware require 12 inches of headroom. Nos. 1641 and 2641 hardware require ½ inch more headroom.

Sidewall Requirements

These sets require 19 inches on side wall toward which the door closes, and width of opening plus 15 inches on the opposite side.

Note: When No. 647 doors and No. 2641 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend 4 inches beyond the steel jamb. Therefore, the 15 inch dimension will be increased an amount equal to the width of the steel jamb.

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified.



No. 2641 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Doors
(See page 232)

Directions For Ordering
(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 641-2, 641-3, 1641 and 2641 Fire Door Hardware, Standard Style

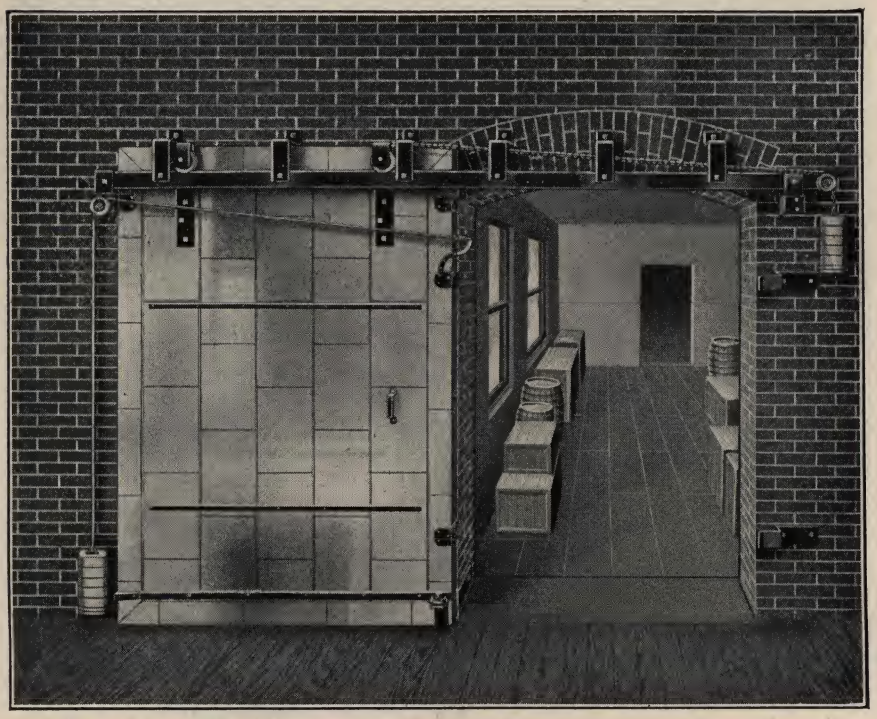
NUMBER OF ¼-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Openings Up to 3′ 0″ Wide	Openings 3′ 1″ to 4′ 6″ Wide	Openings 4′ 7″ to 6′ 0″ Wide	Openings 6′ 1″ to 6′ 8″ Wide	Openings 6′ 9″ to 8′ 8″ Wide	Openings 8′ 9″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 4″ Wide	Openings 10′ 5″ to 12′ 1″ Wide	Openings 12′ 2″ to 14′ 0″ Wide	Length of Bolts Required For Sets Installed	
										On One Side of Wall	On Both Sides of Wall
										Equals Wall Thickness	
Binders	†4	†4	†4	†4	†4	†4	†4	†4	†4	Plus 2″	Plus 2″
*Guide Rollers	1	1	1	1	1	1	1	1	1	Plus 1″	Minus ¾″
End Brackets and Bumpers	2	2	2	2	2	2	2	2	2	Plus 2¼″	Plus 2¼″
Center and Joint Brackets	4	5	6	8	9	10	12	13	14	Plus 2″	Plus 2″
Rear Binder Hook (in No. 1641 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Plus 1″	Plus 2¼″
Rear Binder Hook (in No. 2641 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Minus 2″	Minus 7″
Weight Pulley	1	1	1	1	1	1	1	1	1	Plus 6″	Plus 10″
Total Bolts in Nos. 641-2, 641-3 sets	12	13	14	16	17	18	20	21	22		
Total Bolts in Nos. 1641 and 2641 sets	13	14	15	17	18	19	21	22	23		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8 feet high require 6 bolts. §Openings over 10 feet high require 2 bolts.

Flat Track, Single Link Fire Door Hardware

No. 304 For Tin Clad Doors
No. 1304 For "FyeR-Wall" Sheet Metal Doors
No. 2304 For "FyeR-Ward" Flat Surface Steel Doors
For Single Sliding Doors, Drop Bracket Level Track



No. 304-2 Hardware for 2-ply (1¾") Labeled Tin Clad Doors. (See page 238)
No. 304-3 Hardware for 3-ply (2½") Labeled Tin Clad Doors. (See page 238)

No. 1304 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors (See page 236)

This hardware is included in list of Fire Door Hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

This style of hardware is operated the same as No. 303 illustrated on pages 264-265, except that the track is dropped down in front of door, reducing the amount of headroom required. This type has but one fusible link which is exposed in the opening.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 304-2, 304-3, 1304 and 2304 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	211	7 feet	304
3½ feet	217	7½ feet	310
4 feet	227	8 feet	344
4½ feet	235	8½ feet	350
5 feet	250	9 feet	377
5½ feet	268	9½ feet	383
6 feet	278	10 feet	388
6½ feet	299		

Shipping Weights of Partial Sets

Nos. 304-2, 304-3, 1304 or 2304 AUTOMATICS only; weight per set.....37½ lbs.

Nos. 304-2, 304-3, 1304, or 2304 HARDWARE, less hangers; track and brackets; binder chafe and guide roller strips; weight per set.....102 lbs.

*No. 303-3 hangers only used with Nos. 304-2 or 304-3 or 2304 hardware; weight per pair.....30 lbs.

*No. 1303 hangers with back plates, used with No. 1304 hardware; weight per pair.....30 lbs.

No. 304-84 track with brackets (length equals twice width of opening plus 29 inches), per foot .8 lbs.

*For openings (not doors) over 6 feet wide, Underwriters' require three hangers.

Detail of parts shown on page 254.

Nos. 304, 1304 and 2304 Fire Door Hardware (Continued)

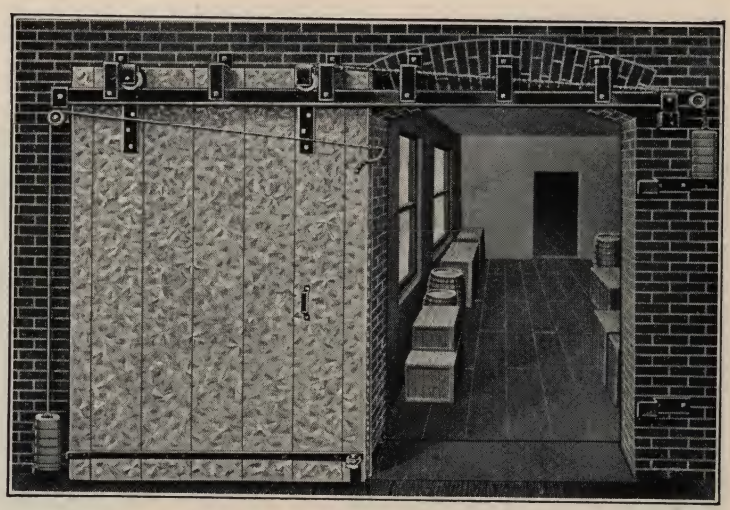
Headroom Requirements

Nos. 304-2 and 304-3 sets require 8 inches of headroom. Nos. 1304 and 2304 sets require ½ inch more headroom.

Sidewall Requirements

These sets require 20 inches on side wall toward which the door closes, and width of opening plus 19 inches on opposite side. **Note:** When No. 647 doors and No. 2304 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend four inches beyond the steel jamb. Therefore, the 19 inch dimension will be increased an amount equal to the width of the steel jamb.

The Automatic closing devices illustrated are standard and will be furnished unless otherwise specified. Other types of automatic closing devices are illustrated on page 251.



No. 2304 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door
(See page 232)

Directions For Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top, (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 304-2, 304-3, 1304 and 2304 Fire Door Hardware, Standard Style

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

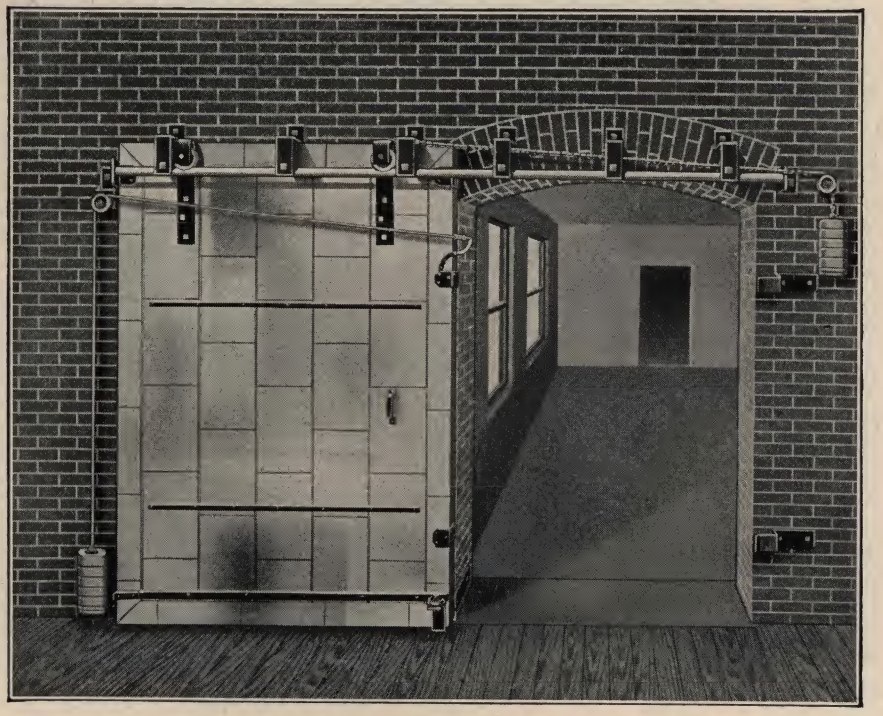
Machine Bolts Used to Fasten	Openings 2′ 0″ to 4′ 8″ Wide	Openings 4′ 8″ to 5′ 2″ Wide	Openings 5′ 3″ to 7′ 8″ Wide	Openings 7′ 9″ to 8′ 8″ Wide	Openings 8′ 9″ to 11′ 8″ Wide	Openings 11′ 9″ to 13′ 0″ Wide	Length of Bolts Required for Sets Installed	
							On One Side of Wall	On Both Sides of Wall
Binders	†4	†4	†4	†4	†4	†4	Wall thickness plus 2″	Wall thickness plus 2″
*Guide Roller	1	1	1	1	1	1	Wall thickness plus 1″	Wall thickness minus ¾″
Drop Brackets	3	4	5	7	8	9	Wall thickness plus 2″	Wall thickness plus 2″
End Track Brackets	2	2	2	2	2	2	**Wall thickness plus 7″	‡Wall thickness plus 11″
Rear Binder Hook (in No. 1304 sets only)	§1	§1	§1	§1	§1	§1	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook (in No. 2304 sets only)	§1	§1	§1	§1	§1	§1	Wall thickness minus 2″	Wall thickness minus 7″
Total Bolts in Nos. 304-2 and 304-3 sets	10	11	12	14	15	16		
Total Bolts in No. 1304 and 2304 sets	11	12	13	15	16	17		

*Wall Bolts not needed when 102-80 Guide Rollers are used.
**For two-ply tin clad doors, wall thickness plus 6 inches.
‡For two-ply tin clad doors, wall thickness plus 9 inches.
†Openings over 8 feet high require 6 bolts.
§Openings over 10 feet high require 2 bolts.

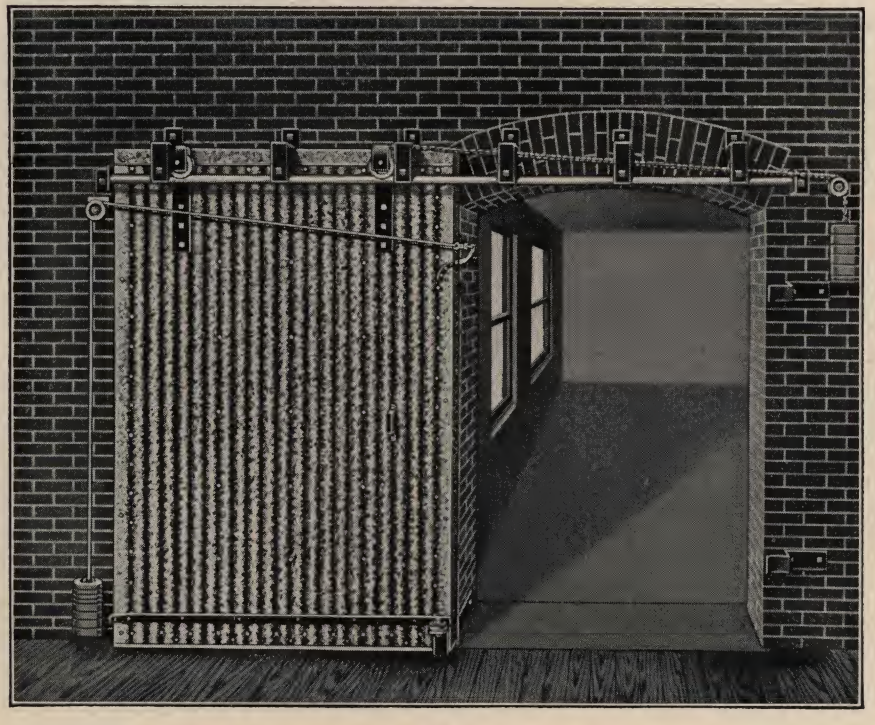
Round Track, Single Link Fire Door Hardware

No. 640 For Tin Clad Doors
No. 1640 For "FyeR-Wall" Sheet Metal Doors
No. 2640 For "FyeR-Ward" Flat Surface Steel Doors

For Single Sliding Doors, Drop Bracket Level Round Track



No. 640-2 Hardware for 2-ply (1¾") Labeled Tin Clad Doors (see page 238)
No. 640-3 Hardware for 3-ply (2½") Labeled Tin Clad Doors (see page 238)



No. 1640 Hardware for No. 447 or 347 Labeled "FyeR-Wall" Sheet Metal Doors (see page 236)

This hardware is included in list of Fire Door Hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

This style hardware is operated the same as No. 641 illustrated on pages 266 and 267, except that the track is dropped down in front of the door, reducing the amount of headroom required. This type has but one fusible link, which is exposed in the opening.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 640-2, 640-3, 1640 and 2640 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	190	7 feet	282
3½ feet	196	7½ feet	288
4 feet	205	8 feet	295
4½ feet	213	8½ feet	301
5 feet	218	9 feet	320
5½ feet	245	9½ feet	330
6 feet	255	10 feet	338
6½ feet	278		

Shipping Weights of Partial Sets

Nos. 640-2, 640-3, 1640 or 2640 AUTOMATICS only; weight per set.....59 lbs.
Nos. 640-2, 640-3, 1640 or 2640 HARDWARE, less hangers, track and brackets; binder, chafe and guide roller strips; weight per set 119 lbs.
*No. 2640 hangers for Nos. 640-2, 640-3, and 2640 hardware; per pair.....25 lbs.
*No. 1640 hangers for No. 1640 hardware; per pair.....25 lbs.
No. 542-C Track only with brackets (length equals twice width of opening plus 12 inches), per foot.....8 lbs.

*For openings (not doors) over 6 feet wide, Underwriters require three hangers.

Detail of parts shown on page 254.

Nos. 640, 1640 and 2640 Fire Door Hardware (Continued)

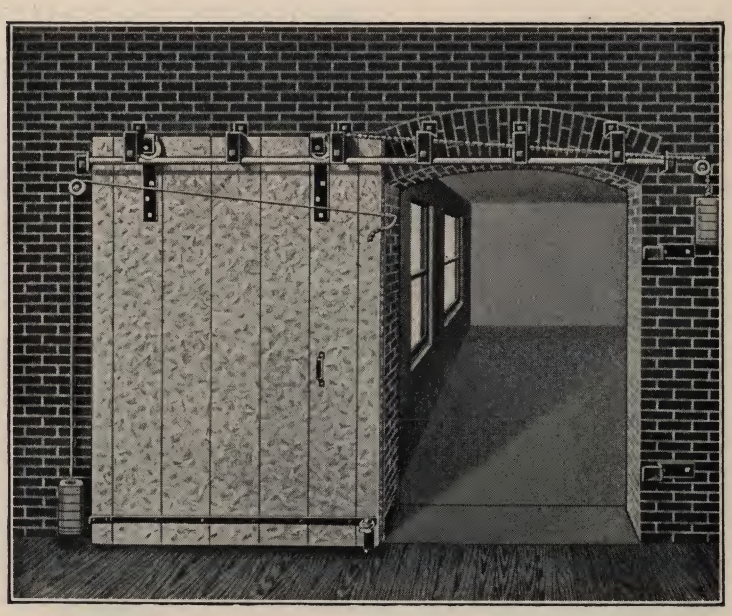
Headroom Requirements

Nos. 640, 1640 and 2640 Hardware require 8 inches headroom.

Sidewall Requirements

These sets require 20 inches on side wall toward which the door closes, and width of opening plus 19 inches on the opposite side. **Note:** When No. 647 doors and No. 2640 hardware is used on openings with steel jambs, the door must be made wide enough so the back edge will extend 4 inches beyond the steel jamb. Therefore the 19 inch dimension will be increased an amount equal to the width of the steel jamb.

The automatic closing devices illustrated are standard and will be furnished unless otherwise specified.



No. 2640 Hardware for No. 647 Labeled "FyeR-Ward" Steel Door. (See page 232).

Directions for Ordering

(Follow form on page 277)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top (see note under "Sidewall Requirements").

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾ inches), three-ply tin clad (2½ inches), "FyeR-Wall" Sheet Metal Doors or "FyeR-Ward" Flat Surface Steel Doors.

Fourth—Thickness of wall, when wall bolts are required, or when doors are used on both sides of wall, in which case special U wall plates are required for guide rollers, when walls are less than 12 inches thick.

Fifth—Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.

Sixth—If opening is square or arched top; if arched give distance from floor to center of arch.

Seventh—Is hardware for a right or left hand door, see page 277.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 640-2, 640-3, 1640, and 2640 Fire Door Hardware

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Openings Up to 3′ 0″ Wide	Openings 3′ 1″ to 4′ 6″ Wide	Openings 4′ 7″ to 6′ 0″ Wide	Openings 6′ 1″ to 6′ 8″ Wide	Openings 6′ 9″ to 8′ 8″ Wide	Openings 8′ 9″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 4″ Wide	Openings 10′ 5″ to 12′ 1″ Wide	Openings 12′ 2″ to 14′ 0″ Wide	Length of Bolts Required for Sets Installed	
										On One Side of wall	On Both Sides of Wall
										Equals Wall Thickness	
Binders	†4	†4	†4	†4	†4	†4	†4	†4	†4	Plus 2″	Plus 2″
*Guide Rollers	1	1	1	1	1	1	1	1	1	Plus 1″	Minus ¾″
End Brackets and Bumpers	2	2	2	2	2	2	2	2	2	Plus 2¼″	Plus 2¼″
Center and Joint Brackets	4	5	6	8	9	10	12	13	14	Plus 2″	Plus 2″
Weight Pulley	2	2	2	2	2	2	2	2	2	Plus 6″	Plus 10″
Rear Binder Hook (in No. 1640 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Plus 1″	Minus ¾″
Rear Binder Hook (in No. 2640 sets only)	§1	§1	§1	§1	§1	§1	§1	§1	§1	Minus 2″	Minus 7″
Total Bolts in Nos. 640-2 and 640-3 sets.	13	14	15	17	18	19	21	22	23		
Total Bolts in Nos. 1640 and 2640 sets..	14	15	16	18	19	20	22	23	24		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8 feet high require 6 bolts. §Openings over 10 feet high require 2 bolts.

Flat Track, Single Link Fire Door Hardware

No. 302-2 For Two-Ply (1¾″) No. 446-2 Tin Clad Doors
No. 302-3 For Three-Ply (2½″) No. 446-3 Tin Clad Doors
No. 1302 For "FyeR-Wall" No. 447 Sheet Metal Doors
No. 2302 For "FyeR-Ward" No. 647 Flat Surface Steel Doors

For Pairs of Sliding Doors, Level Flat Track

No. 302-3 Hardware and 446-3 Labeled Doors

Headroom Requirements

Nos. 302-2 and 302-3 hardware require 17 inches headroom. Nos. 1302 and 2302 hardware require 17½ inches.

Sidewall Requirements

These sets require half the width of opening plus 20 inches wall space on each side of opening.

The above hardware is operated the same as regular No. 303 illustrated on page 264, except using double sliding doors.

Designed to meet special conditions, such as not sufficient wall space on one side to slide a single door and where low headroom will not permit the use of regular No. 204 hardware.

This type has one fusible link on each door and both are exposed in the opening at all times.

Directions for Ordering

See page 264 and give all information asked for.

Shipping weight in table below includes hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 302-2, 302-3, 1302 and 2302 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	264	5½ feet	303	8 feet	337
3½ feet	269	6 feet	309	8½ feet	342
4 feet	275	6½ feet	320	9 feet	360
4½ feet	292	7 feet	326	9½ feet	365
5 feet	298	7½ feet	331	10 feet	371

Shipping Weights of Partial Sets

Nos. 302-2, 302-3, 1302 or 2302 AUTOMATICS only; weight per set ..... 79 lbs.
Nos. 302-2, 302-3, 1302 or 2302 HARDWARE, less hangers; track and brackets, binder, chafe and guide roller strips; weight per set ..... 165 lbs.
*No. 303-2 hangers for Nos. 302-2 and 2302 hardware; per pair .30 lbs.
*No. 303-3 hangers for No. 302-3 hardware; per pair ..... .30 lbs.
*No. 1303 hangers for No. 1302 hardware; per pair ..... .30 lbs.
No. 305-84 track with brackets (length of each track equals width of opening plus 8 inches), per foot ..... 4½ lbs.
*For openings (not doors) over 12 feet wide, Underwriters' require six hangers.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 302-2, 302-3, 1302 and 2302 Fire Door Hardware, Standard Style

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Openings 4′ 0″ to 4′ 5″ Wide	Openings 4′ 6″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 6″ Wide	Openings 10′ 7″ to 13′ 0″ Wide	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
*Guide Rollers	2	2	2	2	Wall thickness plus 1″	Wall thickness minus ¾″
Center Track Brackets	6	8	10	12	Wall thickness plus 4″	Wall thickness plus 5″
End Track Brackets	2	2	2	2	Wall thickness plus 4″	Wall thickness plus 6″
Rear Binder Hook (in 1302 set only)	§2	§2	§2	§2	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook (in 2302 set only)	§2	§2	§2	§2	Wall thickness minus 2″	Wall thickness minus 7″
Weight Pulleys	4	4	4	4	Wall thickness plus 4″	Wall thickness plus 6½″
Total Bolts in Nos. 302-2 and 302-3 sets	14	16	18	20		
Total Bolts in Nos. 1302 and 2302 sets	16	18	20	22		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. §Openings over 10 feet high require 4 bolts.

Round Track, Single Link Fire Door Hardware

No. 602-2 For Two-Ply (1¾″) No. 446-2 Tin Clad Doors

No. 602-3 For Three-Ply (2½″) No. 446-3 Tin Clad Doors

No. 1602 For "FyeR-Wall" No. 447 Sheet Metal Doors

No. 2602 For "FyeR-Ward" No. 647 Flat Surface Steel Doors

For Pairs of Sliding Doors, Level Round Track

Headroom Requirements

No. 602-2 and 602-3 hardware require 17 inches of headroom. Nos. 1602 and 2602 hardware require 17½ inches of headroom.

Sidewall Requirements

These sets require half the width of opening plus 15 inches wall space on each side of opening. **Note:** When No. 647 doors and No. 2602 hardware is used on openings with steel jambs, the doors must be made wide enough so the back edge will extend four inches beyond the steel jamb. Therefore, the 15 inch dimension will be increased an amount equal to the width of the steel jamb.

This hardware is the same as the No. 641 illustrated on page 266, except that it is used in connection with double sliding doors.

Designed to meet special conditions, such as not sufficient wall space on one side to slide a single door, and where low headroom will not permit the use of regular No. 604 hardware.

This type has one fusible link on each door and both are exposed in the opening at all times.

Shipping Weights, Complete Sets

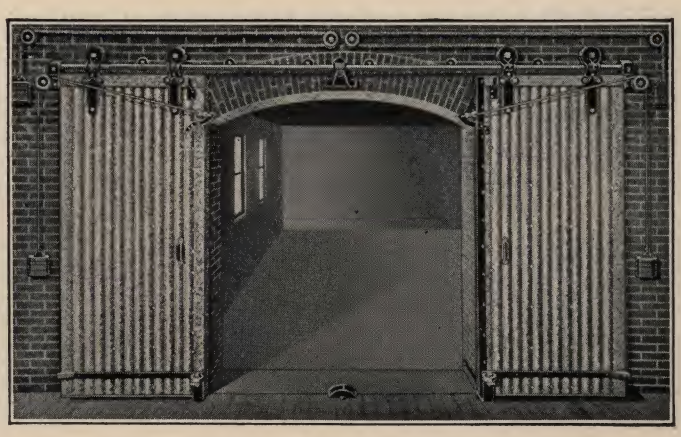
Nos. 602-2, 602-3, 1602 and 2602 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	229	5½ feet	254	8 feet	295
3½ feet	232	6 feet	258	8½ feet	300
4 feet	240	6½ feet	274	9 feet	307
4½ feet	243	7 feet	276	9½ feet	314
5 feet	250	7½ feet	289	10 feet	320

Directions for Ordering

See page 277 and give all information asked for.

Shipping weights in table above include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled.



No. 1602 Hardware and No. 447 or 347 Labeled Doors

Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights of Partial Sets

Nos. 602-2, 602-3, 1602 or 2602 AUTOMATICS only; weight per set.....90 lbs.

Nos. 602-2, 602-3, 1602 or 2602 Hardware, less hangers; track and brackets, binder, chafe and guide roller strips; weight per set.....180 lbs.

*No. 641-2 hangers for No. 602-2 hardware; per pair.....25 lbs.

*No. 641-3 hangers for No. 602-3 hardware; per pair.....25 lbs.

*No. 1641 hangers for No. 1602 hardware; per pair.....25 lbs.

*No. 2641 hangers for No. 2602 hardware; per pair.....25 lbs.

No. 542-C track with brackets (Length of each track equals width of opening plus 8 inches), per foot.....2¼ lbs.

*For openings (not doors) over 12 feet wide, Underwriters' require six hangers.

Detail of parts shown on page 254.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 602-2, 602-3, 1602 and 2602 Fire Door Hardware, Standard Style

NUMBER OF ¼-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

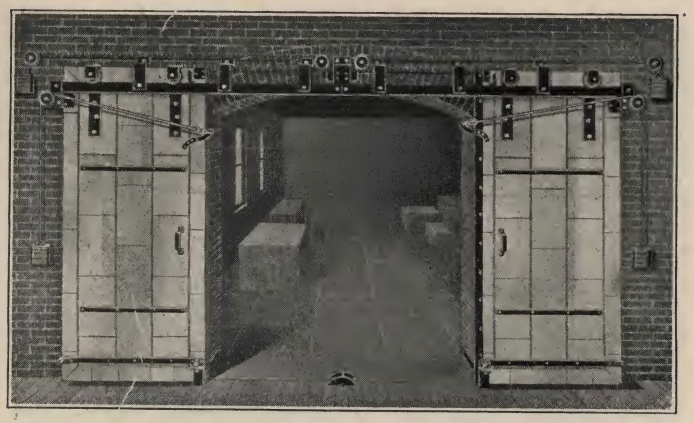
Machine Bolts Used to Fasten:	Openings 4′ 0″ to 6′ 2″ Wide	Openings 6′ 3″ to 9′ 9″ Wide	Openings 9′ 10″ to 12′ 8″ Wide	Openings 12′ 9″ to 14′ 0″ Wide	Length of Bolts Required For Sets Installed	
					On One Side of Wall	On Both Sides of Wall
					Equals Wall Thickness	
Combination Center Bracket and Binder	1	1	1	1	Plus 5″	Plus 9″
*Guide Rollers	2	2	2	2	Plus 1″	Minus ¾″
Center and Joint Brackets	6	10	12	16	Plus 2″	Plus 2″
End Brackets and Bumpers	2	2	2	2	Plus 2¼″	Plus 2¼″
Rear Binder Hook (in No. 1602 set only)	§2	§2	§2	§2	Plus 1″	Minus ¾″
Rear Binder Hook (in No. 2602 set only)	§2	§2	§2	§2	Minus 2″	Minus 7″
Weight Pulleys	4	4	4	4	Plus 4″	Plus 6½″
Total Bolts in Nos. 602-2 and 602-3 sets	15	19	21	25		
Total Bolts in Nos. 1602 and 2602 sets	17	21	23	27		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. §Openings over 10 feet high require 4 bolts.

Flat Track, Single Link Fire Door Hardware

No. 305-2 For Two-Ply (1¾″) No. 446-2 Tin Clad Doors
No. 305-3 For Three-Ply (2½″) No. 446-3 Tin Clad Doors
No. 1305 For "FyeR-Wall" No. 447 Sheet Metal Doors
No. 2305 For "FyeR-Ward" No. 647 Flat Surface Steel Doors

For Pairs of Sliding Doors, Level Flat Track Drop Bracket Type



No. 305-3 Hardware and 446-3 Labeled Doors or No. 305-2 Hardware and 446-2 Labeled Doors.

Shipping Weights, Complete Sets
Nos. 305-2, 305-3, 1305 and 2305 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	304	5½ feet	383	8 feet	457
3½ feet	309	6 feet	389	8½ feet	462
4 feet	315	6½ feet	400	9 feet	500
4½ feet	332	7 feet	406	9½ feet	505
5 feet	358	7½ feet	411	10 feet	511

Shipping Weights of Partial Sets

Nos. 305-2, 305-3, 1305 or 2305 AUTOMATICS only; weight per set ..... 79 lbs.
Nos. 305-2, 305-3, 1305 or 2305 HARDWARE, less hangers; track and brackets; binder, chafe and guide roller strips; weight per set ..... 170 lbs.
*No. 303-3 hangers for Nos. 305-2, 305-3 or 2305 hardware; weight per pair ..... 30 lbs.
*No. 1303 hangers for No. 1305 hardware; weight per pair ..... 30 lbs.
No. 305-84 Track only with brackets (length of each track equals width of opening plus 8 inches), weight per foot .... 8 lbs.
*For openings (not doors) over 12 feet wide, Underwriters' require six hangers.

Detail of parts shown on page 254.

Headroom Requirements

This hardware requires 9 inches of headroom.

Sidewall Requirements

These sets require half the width of opening plus 20 inches of wall space on each side of opening.

This hardware is operated the same as the No. 304 illustrated on pages 268 and 269, except using sliding doors in pairs.

Designed to meet special conditions, such as not sufficient wall space on one side to slide a single door and where low headroom will not permit the use of our regular No. 204 hardware.

This type has one fusible link on each door and both are exposed in the opening at all times.

Directions for Ordering

See page 277 and give all information asked for.

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weights will be doubled. Hardware packed complete with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List for Nos. 305-2, 305-3, 1305 and 2305 Fire Door Hardware
NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Openings 4′ 0″ to 4′ 5″ Wide	Openings 4′ 6″ to 9′ 8″ Wide	Openings 9′ 9″ to 10′ 6″ Wide	Openings 10′ 7″ to 13′ 0″ Wide	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
*Guide Rollers	2	2	2	2	Wall thickness plus 1″	Wall thickness minus ¾″
Center Track Brackets	6	8	10	12	Wall thickness plus 4″	Wall thickness plus 5″
End Track Brackets	2	2	2	2	Wall thickness plus 4″	Wall thickness plus 6″
Rear Binder Hook (in 1305 set only)	§2	§2	§2	§2	Wall thickness plus 1″	Wall thickness minus ¾″
Rear Binder Hook (in 2305 set only)	§2	§2	§2	§2	Wall thickness minus 2″	Wall thickness minus 7″
Weight Pulleys	4	4	4	4	Wall thickness plus 5″	Wall thickness plus 8½″
Total Bolts in Nos. 305-2 and 305-3 sets	14	16	18	20		
Total Bolts in Nos. 1305 and 2305 sets	16	18	20	22		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. §Openings over 10 feet high require 4 bolts.

Round Track, Single Link Fire Door Hardware

No. 605-2 For Two-Ply (1¾″) No. 446-2 Tin Clad Doors
No. 605-3 For Three-Ply (2½″) No. 446-3 Tin Clad Doors
No. 1605 For "FyeR-Wall" No. 447 Sheet Metal Doors
No. 2605 For "FyeR-Ward" No. 647 Flat Surface Steel Doors

For Pairs of Sliding Doors, Level Round Track Drop Bracket Type

Headroom Requirements

This hardware requires 9 inches headroom.

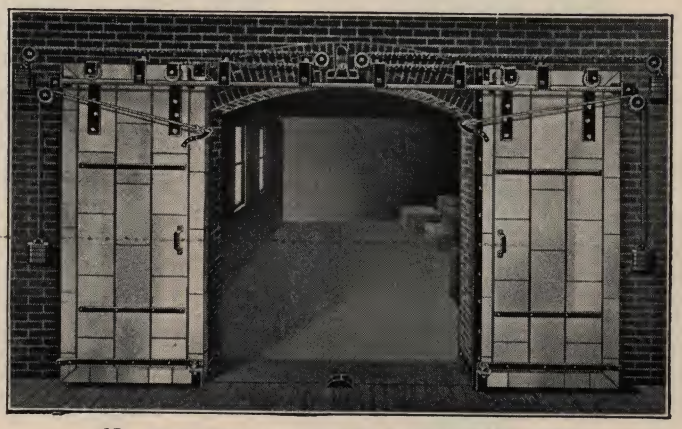
Sidewall Requirements

These sets require half the width of opening plus 19 inches of wall space on each side of opening.

This hardware is operated the same as the No. 640 illustrated on pages 270-271, except using sliding doors in pairs.

Designed to meet special conditions, such as not sufficient wall space on one side to slide a single door, and where low headroom will not permit the use of our regular No. 604 hardware.

This type has one fusible link on each door and both are exposed in the opening at all times.



No. 605-2 Hardware and No. 446-2 or No. 605-3 Hardware and No. 446-3 Labeled Doors

Directions for Ordering

See page 277 and give all information asked for

Shipping weights in table below include hangers, track and hardware complete for doors when used on one side of wall only. If doors are to be used on both sides of the wall, two sets will be required and the weight will be doubled. Hardware packed with all bolts and screws for attaching parts to door, heavy cast washers for wall bolts and necessary counter balance weights. Weights are furnished regularly for openings 8 feet high. If opening is higher, additional weights are required.

Shipping Weights, Complete Sets

Nos. 605-2, 605-3, 1605, and 2605 Fire Door Hardware

Width Opening	Weight lbs.	Width Opening	Weight lbs.	Width Opening	Weight lbs.
3 feet	260	5½ feet	340	8 feet	415
3½ feet	265	6 feet	350	8½ feet	425
4 feet	275	6½ feet	360	9 feet	460
4½ feet	295	7 feet	370	9½ feet	465
5 feet	315	7½ feet	380	10 feet	475

Shipping Weights of Partial Sets

Nos. 605-2, 605-3, 1605 or 2605 AUTOMATICS only; weight per set ..... 95 lbs.
Nos. 605-2, 605-3, 1605 or 2605 HARDWARE, less hangers; track and brackets, binder, chafe and guide roller strips; weight per set ..... 190 lbs.
*No. 2640 hangers for Nos. 605-2, 605-3 and 2605 hardware; weight per pair ..... 25 lbs.
*No. 1640 hangers for No. 1605 hardware; weight per pair ..... 25 lbs.
No. 542-C track with brackets (length of each track equals width of opening plus 8 inches); weight per foot .. 7½ lbs.

*For openings (not doors) over 12 feet wide, Underwriters' require six hangers.

Detail of parts shown on page 251.

Wall Bolts are not furnished with sets of hardware regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Wall Bolt List For Nos. 605-2, 605-3, 1605 and 2605 Fire Door Hardware

NUMBER OF ¾-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Openings 4′ 0″ to 6′ 2″ Wide	Openings 6′ 3″ to 9′ 9″ Wide	Openings 9′ 10″ to 12′ 8″ Wide	Openings 12′ 9″ to 14′ 0″ Wide	Length of Bolts Required For Sets Installed	
					On One Side of Wall	On Both Sides of Wall
					Equals Wall Thickness	
Combination Center Bracket and Binder	1	1	1	1	Plus 5″	Plus 9″
*Guide Roller	2	2	2	2	Plus 1″	Minus ¾″
Center and Joint Brackets	6	10	12	16	Plus 2″	Plus 2″
End Brackets and Bumpers	2	2	2	2	Plus 2″	Plus 2″
Rear Binder Hook (in No. 1605 set only)	§2	§2	§2	§2	Plus 1″	Minus ¾″
Rear Binder Hook (in No. 2605 set only)	§2	§2	§2	§2	Minus 2″	Minus 7″
Weight Pulleys	6	6	6	6	Plus 6″	Plus 10″
Total Bolts in Nos. 605-2 and 605-3 sets	17	21	23	27		
Total Bolts in Nos. 1605 and 2605 sets	19	23	25	29		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. §Openings over 10 feet high require 4 bolts.

Round Track Fire Door Hangers

These Hangers are Inspected by Underwriters' Laboratories (Inc.), sponsored by the National Board of Fire Underwriters, Also Approved by Factory Mutual Laboratories

No. 542-CS-2 Hanger

Steel Frame

No. 542-CM-2 Hanger

Malleable Iron Frame

Nos. 542-CS-2 and 542-CM-2 Hangers

Nos. 641-S-2 and 641-M-2 hangers are the same as above except that there is a hole in the top of the pendant for attaching chain. Either steel or malleable iron frame hangers serve the same purpose.

No. 1640 Hanger

No. 742 Hanger. No. 1641 Hanger is the same as above except that there is a hole in the top of the pendant for attaching chain.

No. 542-CS-3 Hanger

No. 542-CM-3 Hanger

Nos. 542-CS-3 and 542-CM-3 Hangers

Nos. 641-S-3 and 641-M-3 Hangers are the same as above except that there is a hole in the top of the pendant for attaching chain. Either steel or malleable iron frame hangers serve the same purpose.

No. 2640 Hanger

No. 2641 Hanger

Flat Track Fire Door Hangers

These Hangers are Inspected by Underwriters' Laboratories (Inc.), sponsored by the National Board of Fire Underwriters

Also approved by Factory Mutual Laboratories

No. 102-2 Hanger
No. 303-2 Hanger is same as above except there is a hole in the top of pendant for attaching chain

No. 102-3 Hanger
No. 303-3 Hanger is same as above except there is a hole in the top of pendant for attaching chain

No. 1102 Hanger with back plate.
No. 1303 Hanger is same as above except there is a hole in the top of pendant for attaching chain

Table Showing Proper Hanger to use with various Hardware Sets

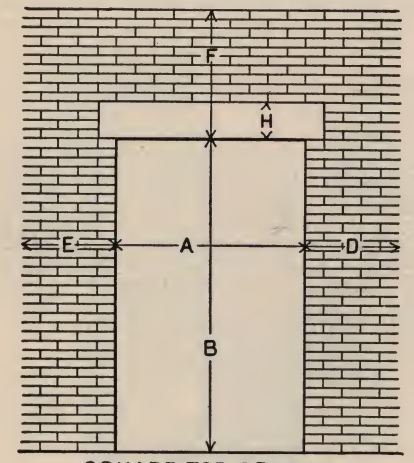
Round Track Fire Door Hangers

Hanger No.	Weight Per Pair	For Hardware Sets No.
542-C-2 (S or M)	25 lbs.	645-2; 646-2; 604-2
641-2 (S or M)	25 lbs.	641-2; 602-2
542-C-3 (S or M)	25 lbs.	645-3; 646-3; 604-3
641-3 (S or M)	25 lbs.	641-3; 602-3
1640	25 lbs.	1640; 1605
2640	25 lbs.	605-3; 2605; 640-2; 640-3; 2640; 605-2
2641	25 lbs.	2645; 2646; 2641; 2604; 2602
742	25 lbs.	1645; 1646; 1604
1641	25 lbs.	1641; 1602

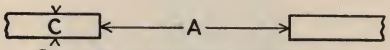
Flat Track Fire Door Hangers

Hanger No.	Weight Per Pair	For Hardware Sets No.
102-2	30 lbs.	204-2; 2204; 102-2; 2102; 201-2; 2201
303-2	30 lbs.	303-2; 2303; 302-2; 2302
102-3	30 lbs.	102-3; 201-3; 204-3
303-3	30 lbs.	303-3; 304-2; 304-3; 302-3; 305-2; 305-3; 2305; 2304
1102	30 lbs.	1102; 1201; 1204
1303	30 lbs.	1303; 1304; 1302; 1305

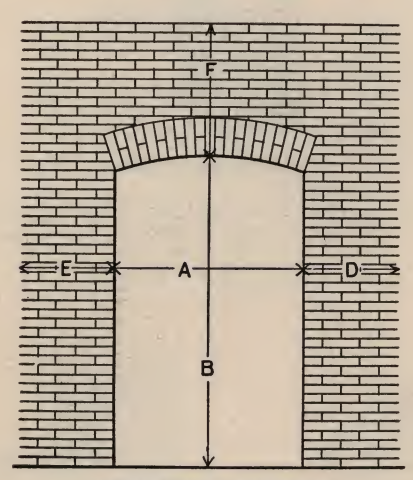
Data Concerning Straight Sliding Fire Doors



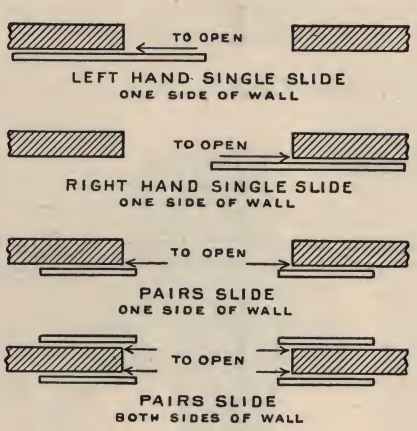
SQUARE TOP OPENING

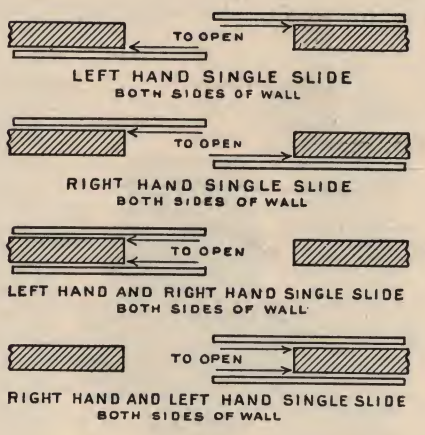


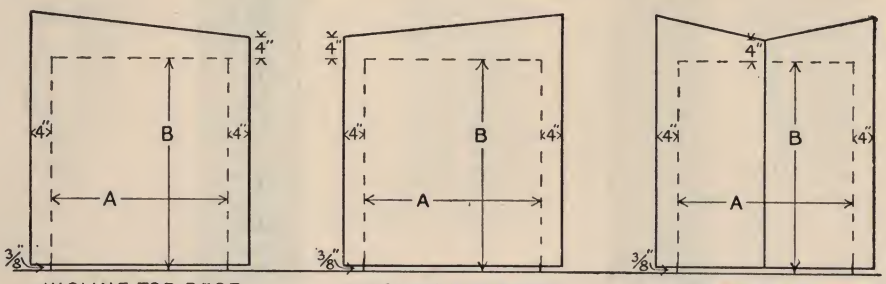
CLEAR MASONRY OPENING

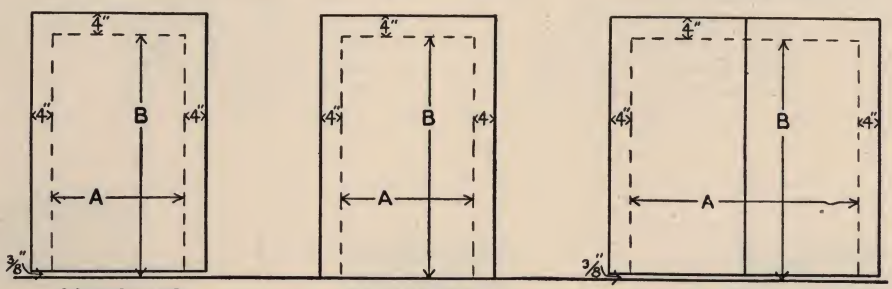


ARCH TOP OPENING









Please Give all Information Requested Below

OPENINGS									DOORS								
HOW MANY?	Square or Arch Top?	"A" Width of Brick Opening	"B" Height of Brick Opening at Center	"C" Thickness of Wall	"D" Unobstructed Wall Space to Right of Opening	"E" Unobstructed Wall Space to Left of Opening	"F" Unobstructed Space above Top of Opening and in Space Door Moves to Open	"H" Height of Material of Lintel	How Many?	2-ply 1¾", 3-ply 2½", Tin Clad, FyeR-Wall Sheet Metal Door or FyeR-Ward Door	Doors on One or Both Sides of Wall	Incline or Level Top	Right or Left Hand, See Plans	Single or Pairs	Hardware—Specify by Number (Automatics Furnished Unless Otherwise Specified)	Class of Opening A. Fire Wall B. Vertical Shaft C. Corridor or Room Partition D. Exterior (Severe Exposure) E. Exterior (Moderate Exposure)

This opening is 8 ft. wide and 8 ft. high. Each door is 8 ft. 8 in. x 4 ft. 4 in.
The hardware is No. 1402, and the doors are "FyeR-Wall" Sheet Metal Type

Two Section Vertical Fire Door Hardware

No. 402-2 for Two-ply (1¾-inch) Tin Clad Doors
No. 402-3 for Three-ply (2½-inch) Tin Clad Doors
No. 1402 for "FyeR-Wall" Sheet Metal Doors
No. 2402 for "FyeR-Ward" Flat Surface Steel Doors

Headroom Required

This hardware requires one-half height of opening plus 19 inches of headroom.

Sidewall Requirements

Doors weighing less than 300 pounds require 22″ beyond doorway on side where large weight occurs and 16″ on opposite side. Doors weighing 300 pounds and over require 22″ on one side and 30″ on the other side.

Directions for Ordering

Give width and height of opening, available space above doorway, space on each side of doorway, kind of doors and thickness of wall.

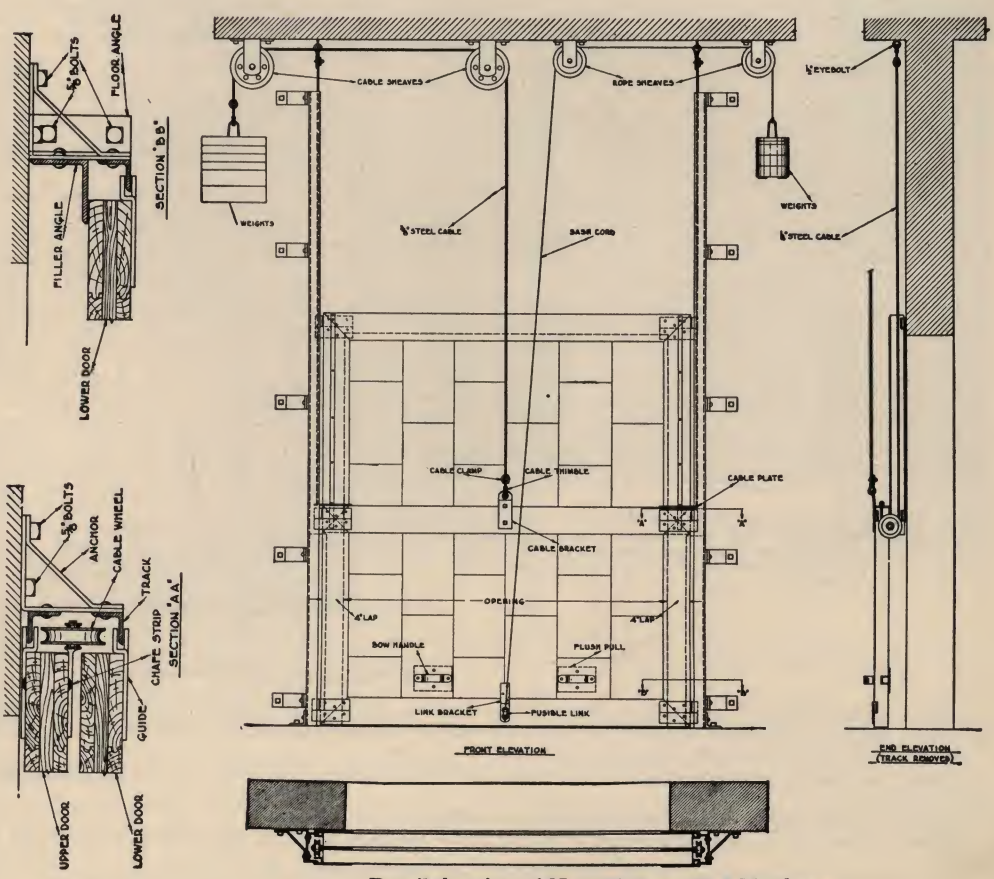
State if weights and weight boxes are to be furnished by R-W with the hardware.

This is a special type of hardware that can be used where there is not sufficient side wall space for sliding doors, nor headroom enough for one section (No. 203 type) vertical doors.

Hardware is made for Nos. 446-2, 446-3, 447 or 647 type of doors. Detail drawings below show arrangement of hardware and you will note cable attached to ceiling and top of lower door section. This cable running under cable wheel on upper door section raises it at one half the speed of the lower section, thus both door sections reaching an open position at the same time. The fusing of the links reverses this action and both sections close together.

Weight boxes furnished on special order if required. Priced separately from hardware.

Weights will be quoted in addition to hardware when so required.

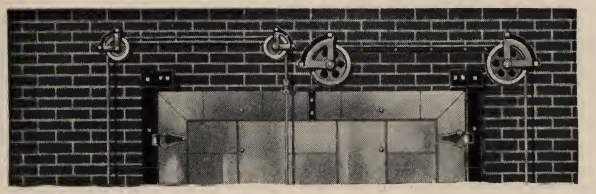


Detail drawing of No. 402-2 or 402-3 Hardware

Two Link Flat Track Vertical Fire Door Hardware

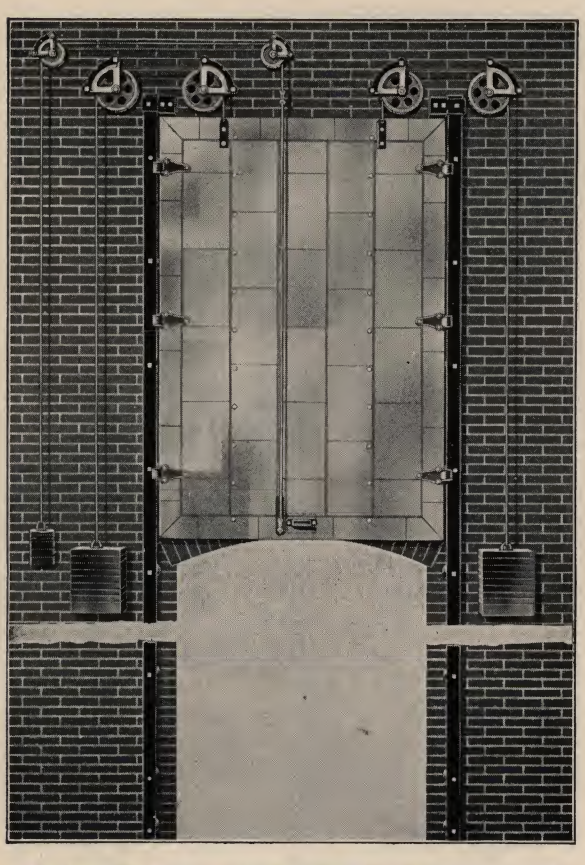
(For Single Vertical Doors)

R-W Nos. 203, 1203, 2203, 103, 1103 and 2103



This arrangement shows hardware with one set of weights. Approved sets (Nos. 203, 1203 or 2203) for openings not over 20 sq. ft. in area, with neither height nor width exceeding 5 ft. provided the openings are not used for passage of people.

Non-Approved sets (Nos. 103, 1103 or 2103) are available for openings from 6′ high by 8′ wide up to 10′ high by 4′ 6″ wide.



This arrangement shows hardware with two sets of weights. Approved sets (Nos. 203, 1203 or 2203) for openings not over 80 sq. ft. in area, with neither height nor width exceeding 10 feet. Non-approved sets (Nos. 103, 1103 or 2103) are available for openings from 7′ high by 12′ wide, up to 12′ high by 7′ wide.

APPROVED HARDWARE

	With One Set of Large Weights				With Two Sets of Large Weights			
Hardware Cat. No.....	203-21	203-31	1203-1	2203-1	203-22	203-32	1203-2	2203-2
Using Doors No.....	446-2	446-3	347-447	647	446-2	446-3	347-447	647
	Approved for openings not over 20 sq. ft. in area, with neither height nor width exceeding 5 feet. Openings not to be used for passage of people.				Approved for openings not over 80 sq. ft. in area, with neither height nor width exceeding 10 feet.			

NON-APPROVED HARDWARE

	With One Set of Large Weights				With Two Sets of Large Weights			
Hardware Cat. No.....	103-21	103-31	1103-1	2103-1	103-22	103-32	1103-2	2103-2
Using Doors No.....	446-2	446-3	347-447	647	446-2	446-3	347-447	647

Headroom Requirements

Hardware with one set of large weights require height of opening plus 21½″ of headroom.
Hardware with two sets of large weights require height of opening plus 22½″ of headroom.

Sidewall Requirements

Hardware with one set of large weights require 15″ on one side and 21″ on the other.
Hardware with two sets of large weights require 21″ on one side and 28″ on the other.

All No. 203, 1203 and 2203 sets of hardware are labeled and inspected by the Underwriter's Laboratories, Inc., sponsored by the National Board of Fire Underwriters and are also approved by the Factory Mutual Laboratories. However, hardware with one set of weights is not approved for openings over 20 sq. ft. in area, with neither height nor width exceeding 5 feet, and hardware with two sets of weights is not approved for openings over 80 sq. ft. in area with neither height nor width exceeding 10 feet.

Underwriters require a binder and binder pocket at the center of the top of No. 347, No. 447 and No. 647 Fire Doors, otherwise door cannot be labeled.

Recommended only for openings where slide or swing hardware cannot be used on account of obstructions. The use of vertical doors in any given location should be considered in its relation to life hazards. Serious injury may be anticipated should the door operate while persons are passing under. The vertical fire doors and hardware are made to act by gravity and close automatically at the approach of fire. As shown in illustration, the fusible link is in the circuit which supports the light weights. Heavy counter balance weights are attached by wire cable to the top of the door and are adjusted to prevent sudden dropping of the door, when link, which releases the small weights, fuses. Upper illustrations show hardware for doors using one set of large weights; lower illustration for doors using 2 sets of large weights.

Shipping Weights

The weights given in table below include guides, track and hardware complete with all bolts and screws for attaching parts to door and heavy cast washers for wall bolts. If doors are used on both sides of wall, two sets will be required and the weight will be doubled. Counter-balance weights are not included in weight of hardware. Wall bolts also are not included, but will be furnished on request at moderate price if thickness of wall is given. (See page 282.)

HARDWARE SETS Using 1 Set of Large Weights				HARDWARE SETS Using 2 Sets of Large Weights			
Catalog No.	Maximum Height of Opening	Maximum Width of Opening	Shipping Weight Lbs.	Catalog No.	Maximum Height of Opening	Maximum Width of Opening	Shipping Weight Lbs.
203-21	*2′	10′	147	203-22	*6′	10′	256
203-31	*3′	6′ 8″	165	203-32	*7′	10′	274
1203-1 or	*4′	5′	183	1203-2 or	*8′	10′	292
2203-1	*5′	4′	201	2203-2	*9′	8′ 10″	310
(State which is wanted)				(State which is wanted)	*10′	8′	328
103-21	6′	8′	219	103-22	7′	12′	273
103-31	7′	7′	237	103-32	8′	11′	292
1103-1 or	8′	6′	255	1103-2 or	9′	10′	310
2103-1	9′	5′	273	2103-2	10′	9′	328
(State which is wanted)	10′	4′ 6″	291	(State which is wanted)	11′	8′	340
					12′	7′	358

*These sets Approved and Labeled.

†When the width of the door is more than 3 times its height, special treatment is necessary to assure proper operation. Prices and working clearance in such cases, subject to special consideration by our Engineering Department.

Counter-balance weights are not included, but will be furnished at an additional price if desired.

Directions for Ordering

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, mention if Hardware can be bolted together and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top.

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾-inch), three-ply tin clad (2½-inch), "FyeR-Wall" Sheet Metal Doors, or "FyeR-Ward" Flat Surface Doors.

Fourth—Thickness of wall, when wall bolts are required.

Fifth—Distance from edge of opening to walls at right angles, if any. State distance from highest points of openings to nearest obstructions overhead.

Heavy weights should be specified equal to ⅞th weight of door and small weights equal to ⅛th weight of door.

Detail of parts shown on pages 282-283.

Two Link Round Track Vertical Fire Door Hardware

(For Single Vertical Doors)

No. 603-2 for Two-ply (1¾ inch) No. 446-2 Tin Clad Doors
No. 603-3 for Three-ply (2½ inch) No. 446-3 Tin Clad Doors
No. 1603 for "FyeR-Wall" No. 447 Sheet Metal Doors
No. 2603 for "FyeR-Ward" No. 647 Flat Surface Steel Doors

Headroom Requirements

Hardware for doors weighing less than 300 lbs. requires 21½″ of headroom.

Hardware for doors weighing more than 300 lbs. requires 22½″ of headroom.

Sidewall Requirements

For doors weighing less than 300 lbs. 15″ are required on one side and 21″ on the other.

For doors weighing more than 300 lbs. 21″ are required on one side and 28″ on the other.

This type of hardware is used for openings where obstructions do not permit the use of slide or swing fixtures.

Hardware is the same as shown on opposite page except that round track and guides are used.

Upper illustration shows hardware for doors weighing less than 300 lbs.

Lower illustration shows hardware for doors weighing 300 lbs. to 600 lbs.

Shipping Weights

The following weight list includes guides, track and hardware complete with all bolts and screws for attaching parts to door, and heavy cast washers for wall bolts.

If doors are used on both sides of wall, two sets will be required and the weight will be doubled.

Counter balance weights are not included in weights of hardware.

Wall bolts are also not included, but will be furnished on request at moderate price if thickness of wall is given.

Height of Opening	Doors Less Than 300 Lbs.		Doors 300 to 600 Lbs.	
		Weight Pounds		Weight Pounds
5 feet	Counter Balance Weights Not Included	164	Counter Balance Weights Not Included	210
6 feet		177		223
7 feet		190		236
8 feet		203		249
9 feet		216		262
10 feet		229		275

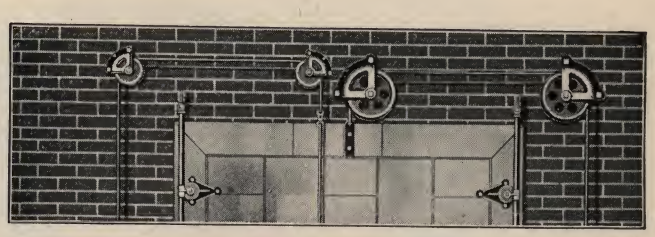
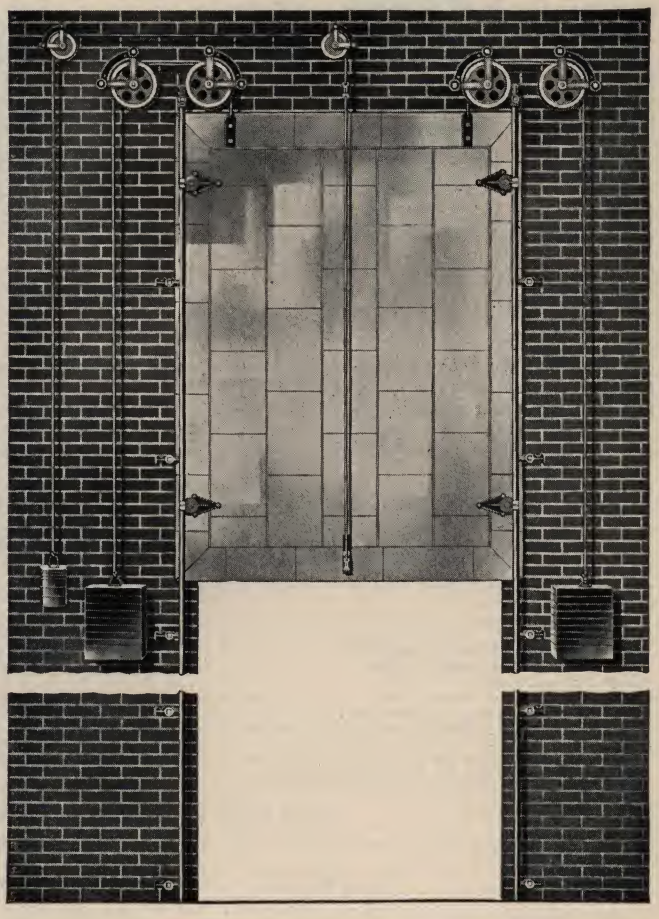


Fig. A-3033



Directions for Ordering

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, mention if Hardware can be bolted together and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top.

Second—Width and height of opening (mention width first).

Third—Thickness of doors, if two-ply tin clad (1¾-inch), three-ply tin clad (2½-inch), "FyeR-Wall" Sheet Metal Doors, or "FyeR-Ward" Flat Surface Doors.

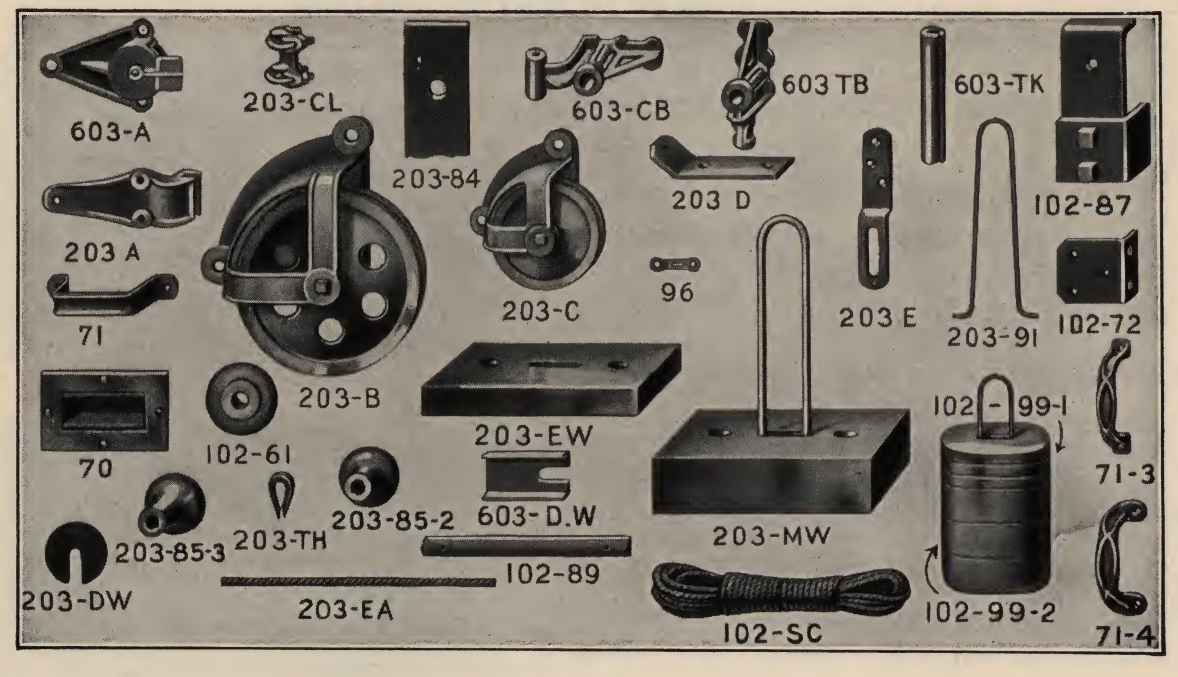
Fourth—Thickness of wall, when wall bolts are required.

Fifth—Distance from edge of opening to walls at right angles, if any. State distance from highest points of openings to nearest obstructions overhead.

Heavy weights should be specified equal to ⅞th weight of door and small weights equal to ⅛th weight of door.

Detail of parts shown on pages 282-283.

Details of Parts for Nos. 203, 1203, 2203, 603, 1603 and 2603 Vertical Sliding Fire Door Hardware



For Description See Next Page

Wall Bolt List for Nos. 203-2, 203-3 and 1203 Fire Door Hardware

Wall Bolts are not furnished with sets of fixtures regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

Bolts Used to Fasten:	Opening up to 4′ 10″ high	Opening 4′ 11″ to 7′ 6″ high	Opening 7′ 7″ to 10′ 2″ high	Opening 10′ 3″ to 12′ 10″ high	Length of Bolts for: No. 203-2 Hardware — On One Side of Wall	No. 203-2 Hardware — Both Sides of Wall	No. 203-3 and 1203 Hardware — On One Side of Wall	No. 203-3 and 1203 Hardware — Both Sides of Wall
Center Track Brackets	10	14	18	22	Wall thickness plus 3½″	plus 4½″	Wall thickness plus 4½″	plus 6″
Top Track Brackets	2	2	2	2	Wall thickness plus 4″	plus 5″	Wall thickness plus 5″	plus 7″
Cable Pulleys								
With one set of heavy weights	4	4	4	4	Wall thickness plus 3″	plus 3″	Wall thickness plus 3″	plus 3″
With two sets of heavy weights	8	8	8	8	Wall thickness plus 3″	plus 3″	Wall thickness plus 3″	plus 3″
*Rope Pulley	4	4	4	4	Wall thickness plus 3″	plus 3″	Wall thickness plus 3″	plus 3″
Total ¾″ Bolts in sets for doors less than 300 lbs.	16	20	24	28				
Total ⅝″ Bolts in sets for doors less than 300 lbs.	4	4	4	4				
Total ¾″ Bolts in sets for doors 300 lbs. and over	20	24	28	32				
Total ⅝″ Bolts in sets for doors 300 lbs. and over	4	4	4	4				

Note: Wall bolts for No. 2203 differ slightly from this list.

Wall Bolt List for Nos. 603-2, 603-3 and 1603 Fire Door Fixtures

Bolts Used to Fasten:	Opening 2′ 10″ to 3′ 9″ high	Opening 3′ 10″ to 4′ 9″ high	Opening 4′ 10″ to 5′ 9″ high	Opening 5′ 10″ to 6′ 9″ high	Opening 6′ 10″ to 7′ 9″ high	Opening 7′ 10″ to 8′ 9″ high	Opening 8′ 10″ to 9′ 9″ high	Opening 9′ 10″ to 10′ 9″ high	Length of Bolts for: No. 603-2 Fixtures — On One Side of Wall	No. 603-2 Fixtures — Both Sides of Wall	No. 603-3 and 1603 Fixtures — On One Side of Wall	No. 603-3 and 1603 Fixtures — Both Sides of Wall
Track Brackets	10	12	14	16	18	20	22	24	Wall thickness plus 5″	plus 8″	Wall thickness plus 6″	plus 10″
Cable Pulleys												
Doors less than 300 lbs.	4	4	4	4	4	4	4	4	Wall thickness plus 3″	plus 3″	Wall thickness plus 3″	plus 3″
Doors 300 lbs. and over	8	8	8	8	8	8	8	8	Wall thickness plus 3″	plus 3″	Wall thickness plus 3″	plus 3″
*Rope Pulley	4	4	4	4	4	4	4	4	Wall thickness plus 3″	plus 3″	Wall thickness plus 3″	plus 3″
Total ¾″ Bolts in sets for doors less than 300 lbs.	14	16	18	20	22	24	26	28				
Total ⅝″ Bolts in sets for doors less than 300 lbs.	4	4	4	4	4	4	4	4				
Total ¾″ Bolts in sets for doors 300 lbs. and over	18	20	22	24	26	28	30	32				
Total ⅝″ Bolts in sets for doors 300 lbs. and over	4	4	4	4	4	4	4	4				

Note: Wall Bolts for 2603 differ slightly from this list.

***Note:** All Track and Cable Pulley Bolts are ¾″ diameter. Rope Pulley Bolts are ⅝″ diameter.

Packing List of Parts Used on Nos. 203, 1203, 603 and 1603 Fixtures
Nos. 2203 and 2603 Parts differ slightly from this list

No. 203-2 or 603-2 For Doors with 1 set h'vy wts.	No. 203-2 or 603-2 For Doors with 2 sets h'vy wts.	No. 203-3 or 603-3 For Doors with 1 set h'vy wts.	No. 203-3 or 603-3 For Doors with 2 sets h'vy wts.	No. 1203 or 1603 For Doors with 1 set h'vy wts.	No. 1203 or 1603 For Doors with 2 sets h'vy wts.	DESCRIPTION
1	1	.....	.....	.....	.....	No. 70-1 Flush Pull
.....	.....	1	1	.....	.....	No. 70-2 Flush Pull
1	1	.....	.....	.....	.....	No. 71-1 Bow Handle
.....	.....	1	1	.....	.....	No. 71-2 Bow Handle
.....	.....	.....	.....	1	.....	No. 71-3 Bow Handle
.....	.....	.....	.....	1	1	No. 71-4 Bow Handle
1	1	1	1	1	1	No. 96 Fusible Links
1 Pc.	1 Pc.	1 Pc.	1 Pc.	1 Pc.	1 Pc.	No. 102-SC Sash Cord
*	*	*	*	*	*	No. 102-61 Cast Washers
2 Pcs.	2 Pcs.	2 Pcs.	2 Pcs.	.....	.....	No. 102-89 Chafe Strips. Length equals height of opening less 4″ Strips up to 4′ long
*	*	*	*	*	*	No. 102-99 Weights, ⅓ weight of doors
2	4	2	4	2	4	No. 203-B Cable Pulleys
2	2	2	2	2	2	No. 203-C Rope Pulleys
2	4	2	4	2	4	No. 203-CL Cable Clamps
1	2	1	2	1	2	No. 203-D Brackets
1	1	1	1	1	1	No. 203-E Link Bracket with No. 96 Fusible Link attached
*	*	*	*	*	*	No. 203-EW Weights
1	2	1	2	1	2	No. 203-MW Weights
1 Pc.	2 Pcs.	1 Pc.	2 Pcs.	1 Pc.	2 Pcs.	No. 203-CA 5/16″ Cable
1	1	1	1	1	1	No. 203-91 Weight Holder
2	4	2	4	2	4	No. 203 Thimbles
1	1	1	1	1	1	Package Screws and Bolts

The Following Hardware Is Used on No. 203 and No. 1203 Hardware Only

203-2		203-3		1203		DESCRIPTION
4	4	4	4	.....	.....	No. 102-72 Bumper Shoes
2	2	2	2	2	2	No. 102-87 Bumpers
4, 6 or 8	4, 6 or 8	4, 6 or 8	4, 6 or 8	.....	.....	No. 203-A Guides, according to height of door
*	*	*	*	*	*	No. 203-DW Drop Washers. (See table below)
2 Runs	2 Runs	2 Runs	2 Runs	2 Runs	2 Runs	No. 203-84 Track Length, equals twice height of opening plus 9″
*	*	.....	.....	.....	.....	No. 203-85-2 Track Brackets (see table below)
.....	.....	*	*	*	*	No. 203-85-3 Track Brackets (see table below)
.....	.....	.....	.....	4, 6 or 8	4, 6 or 8	No. 1203-A Guides, according to height of door

The Following Hardware Is Used on No. 603 and No. 1603 Hardware Only

603-2		603-3		1603		DESCRIPTION
4	4	4	4	4	4	603-A Guides
*	*	.....	.....	.....	.....	No. 603-CB-2 Center Brackets (see table below)
.....	.....	*	*	*	*	No. 603-CB-3 Center Brackets (see table below)
2	2	.....	.....	.....	.....	No. 603-TB-2 Top Brackets
.....	.....	2	2	2	2	No. 603-TB-3 Top Brackets
*	*	*	*	*	*	No. 603-DW Drop Washers (see table below)
2 Runs	2 Runs	2 Runs	2 Runs	2 Runs	2 Runs	No. 603 Track, length equals twice height of opening plus 4″

Table Applying to No. 203 and No. 1203 Hardware Only

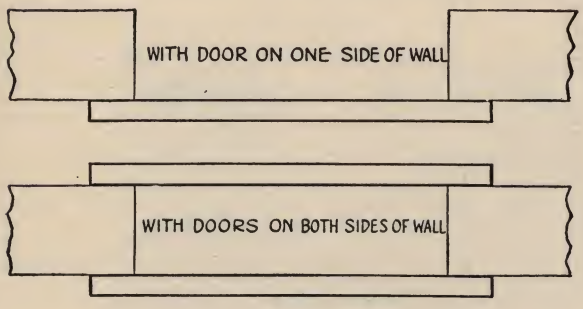
Height of Opening	Nos. 203-85-2 and 203-85-3 Center Brackets	No. 203-DW Drop Washers	No. 102-62 Washers For Door With 1 Set Heavy Weights	No. 102-61 Washers For Doors With 2 Sets Heavy Weights
Up to 4′ 10″	12	12	20	24
4′ 11″ to 7′ 6″	16	16	24	28
7′ 7″ to 10′ 2″	20	20	28	32
10′ 3″ to 12′ 10″	24	24	32	36
	Hardware only requires.	.....	8	12

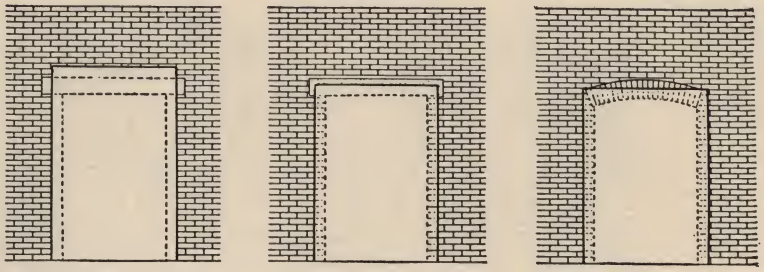
Table Applying to No. 603 and No. 1603 Only

Height of Opening	Nos. 603-CB-2 and 603-CB-3	*No. 603-DW	No. 102-61 Washers for Doors Less Than 300 Lbs.	No. 102-61 Washers for Doors 300 Lbs. and Over
2′ 10″ to 3′ 9″	8	10	18	22
3′ 10″ to 4′ 9″	10	12	20	24
4′ 10″ to 5′ 9″	12	14	22	26
5′ 10″ to 6′ 9″	14	16	24	28
6′ 10″ to 7′ 9″	16	18	26	30
7′ 10″ to 8′ 9″	18	20	28	32
8′ 10″ to 9′ 9″	20	22	30	34
9′ 10″ to 10′ 9″	22	24	32	36
*Packed with 3-ply hardware only	Hardware only requires.	.....	8	12

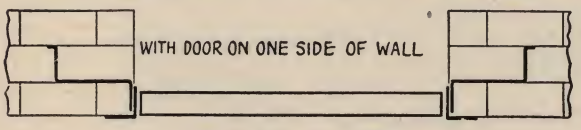
Data Concerning Fire Doors That Swing

LAP TYPE DOORS IN CLEAR MASONRY OPENING

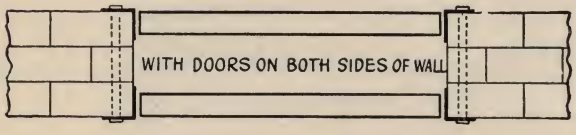


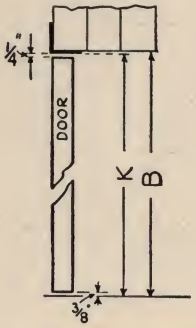


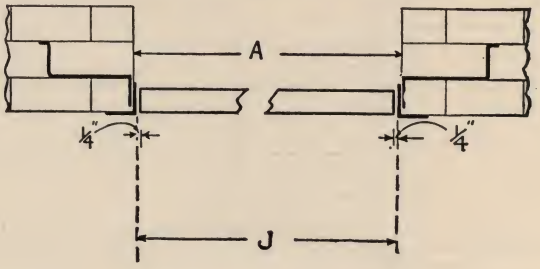
FLUSH TYPE DOORS WITH ANGLE FRAME ON FACE OF WALL



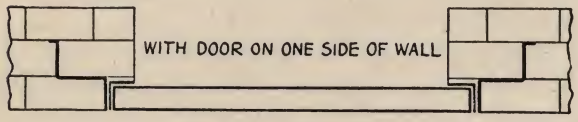
R-W No. 386 Type



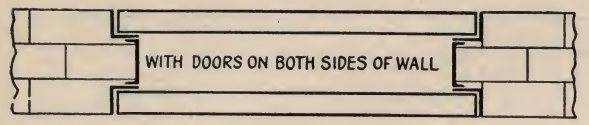


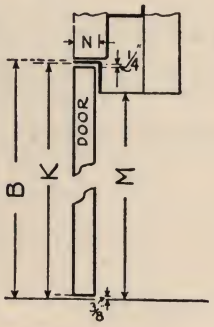


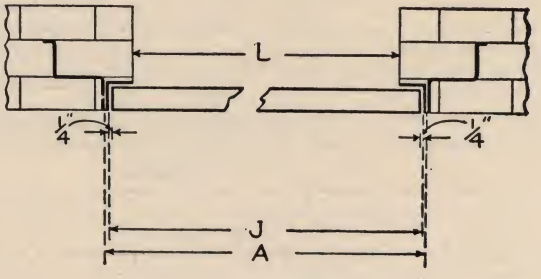
FLUSH TYPE DOORS IN RABBETTED ANGLE FRAME



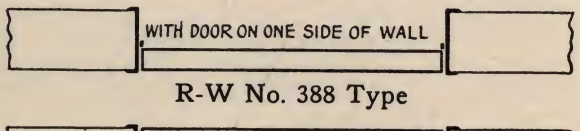
R-W No. 387 Type



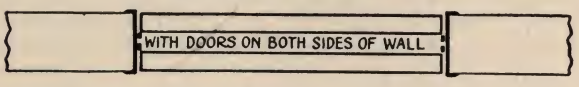


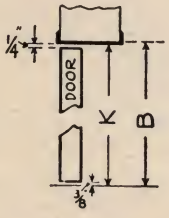


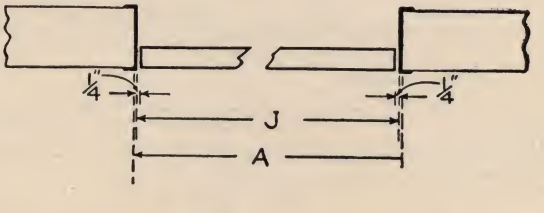
FLUSH TYPE DOORS IN CHANNEL FRAME



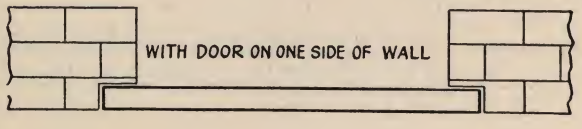
R-W No. 388 Type

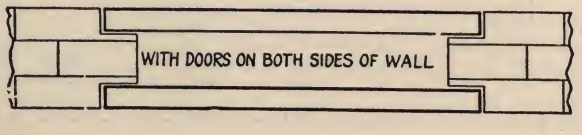


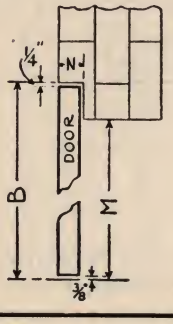


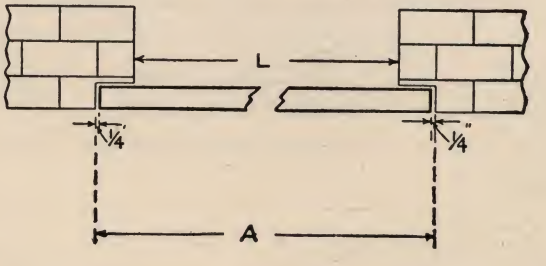


FLUSH TYPE DOORS IN RABBETTED MASONRY OPENING

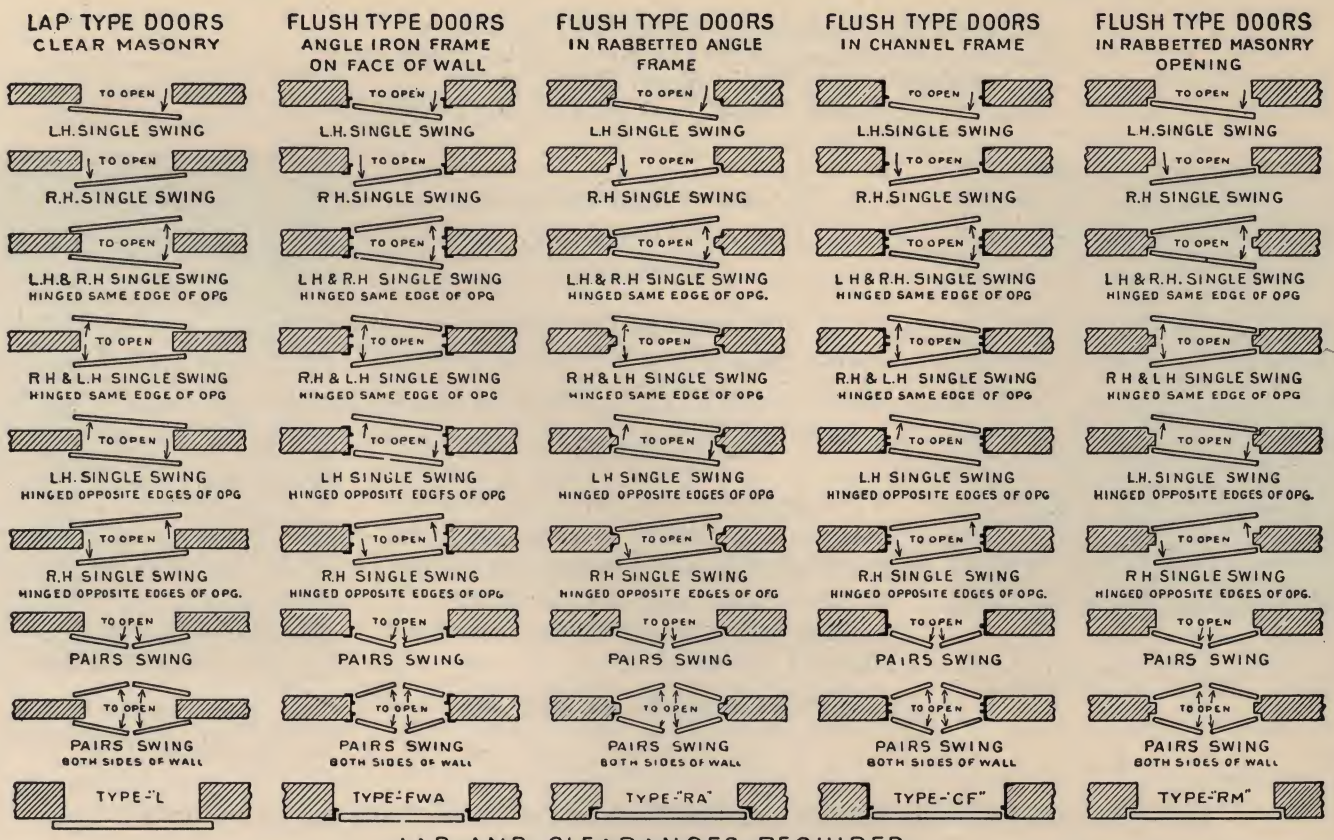




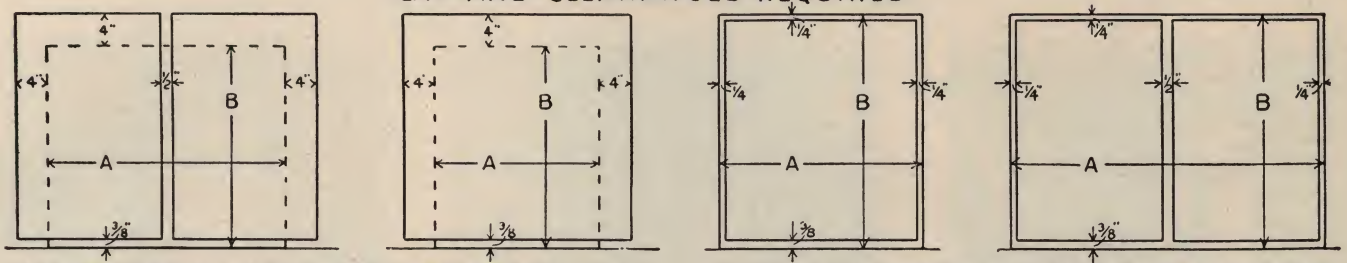




Data Concerning Fire Doors That Swing



LAP AND CLEARANCES REQUIRED



LAP DOORS MUST LAP THE OPENING 4" AT TOP AND BOTH SIDES. 3/8" CLEARANCE AT THE BOTTOM OF OPENING MUST BE PROVIDED

ALL FLUSH TYPE DOORS MUST HAVE 1/4" CLEARANCE AT BOTH SIDES AND AT TOP, AND 3/8" AT BOTTOM OF OPENING.
PAIRS OF DOORS HAVE 1/2" CLEARANCE AT CENTER OF OPENING

Please Give all Information Requested Below, Depending upon Type of Opening

OPENINGS												DOORS						
HOW MANY?	Square or Arch Top?	"A" Width of Brick Opening	"B" Height of Brick Opening	"C" Thickness of Wall	"D" Available Wall Space to Right of Opening	"E" Available Wall Space to Left of Opening	"F" Available Space Above Top of Opening	"J" Door Opening Width in Frame	"K" Door Opening Height in Frame	"L" Net Brick Opening Width (Rabbeted Style)	"M" Net Brick Opening Height (Rabbeted Style)	HOW MANY?	Doors on One or Both Sides of Wall?	Flush or Overlap Specify Type Frame	Hinged Right or Left Hand?	Single or Pairs	Hardware: See last page for styles Specify by Numbers (Automatics furnished unless otherwise specified).	2-ply 1¾", 3-ply 2¼" Tin Clad or FyeR-Wall 2⅝" Sheet Metal

Automatic Labeled Fire Door Hardware for Single Swinging Doors

No. 406-2 for Two-ply (1¾ inch) Tin Clad Doors
No. 406-3 for Three-ply (2½ inch) Tin Clad Doors
No. 1406 for "FyeR-Wall" Sheet Metal Doors
No. 2406 for "FyeR-Ward" Flat Surface Steel Doors

No. 1406 Hardware with "FyeR-Wall" No. 347 or 447 Corrugated Sheet Metal Lap Door.

Headroom Requirements:

9″ above top of door,
(Not opening)

Sidewall Requirements

On Hinge Side:
11″ beyond door

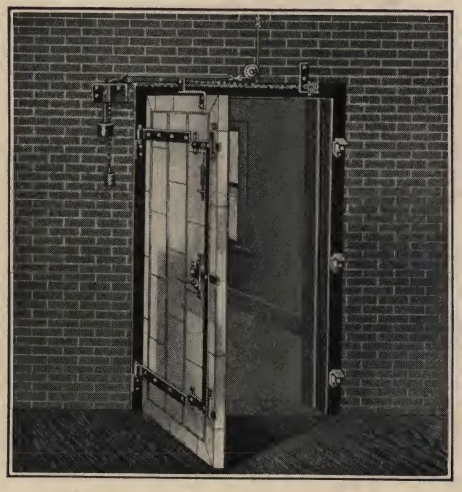
On Latch Side:
4″ beyond door

This hardware is included in the list of Fire Door Hardware and inspected by Underwriter's Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

Bolt list shown on page 293.

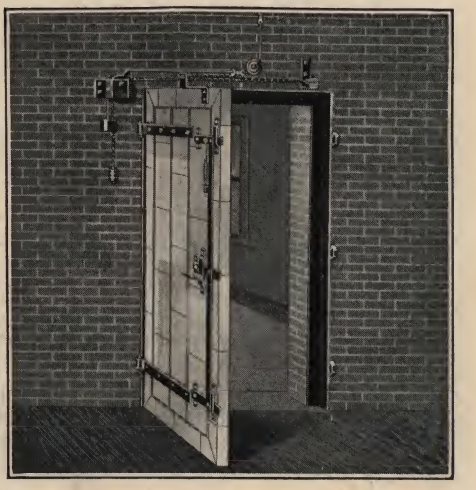
No. 2406 Hardware with No. 647 "FyeR-Ward" Flush Door in angle iron frame in face of wall.

Either Tin Clad Corrugated Steel or Flat Surface Steel Fire Doors can be mounted in any of the ways illustrated on this page



No. 406 Hardware with No. 446 Tin Clad Flush Door in Channel Frame.

No. 406 Hardware with No. 446 Tin Clad Flush Door in angle frame in Face of Wall.



No. 406 Hardware with No. 446 Tin Clad Flush Door in Rabbeted Angle Frame.

Weights of Nos. 406-2, 406-3, 1406 and 2406 Hardware for Any Type Door Frame

Height of Doors	Up to 5′ 9″	5′ 10″ to 8′ 9″	8′ 10″ to 10′ 4″
Weight, Complete Sets	90 lbs.	130 lbs.	144 lbs.
*Weight Hardware, Less Automatics	60 lbs.	100 lbs.	114 lbs.
Weight, Automatics only	30 lbs.	30 lbs.	30 lbs.
Kind of Latches	Double	Triple	Quadruple

*No. 1643 Door Closer (page 52) may be substituted for Automatics shown above

Nos. 406, 1406 and 2406 Fire Door Hardware (Cont'd)

For Single Swinging Doors

This hardware is inspected by Underwriters' Laboratories, Inc., under direction of the National Board of Fire Underwriters, and approved by Factory Mutual Laboratories.

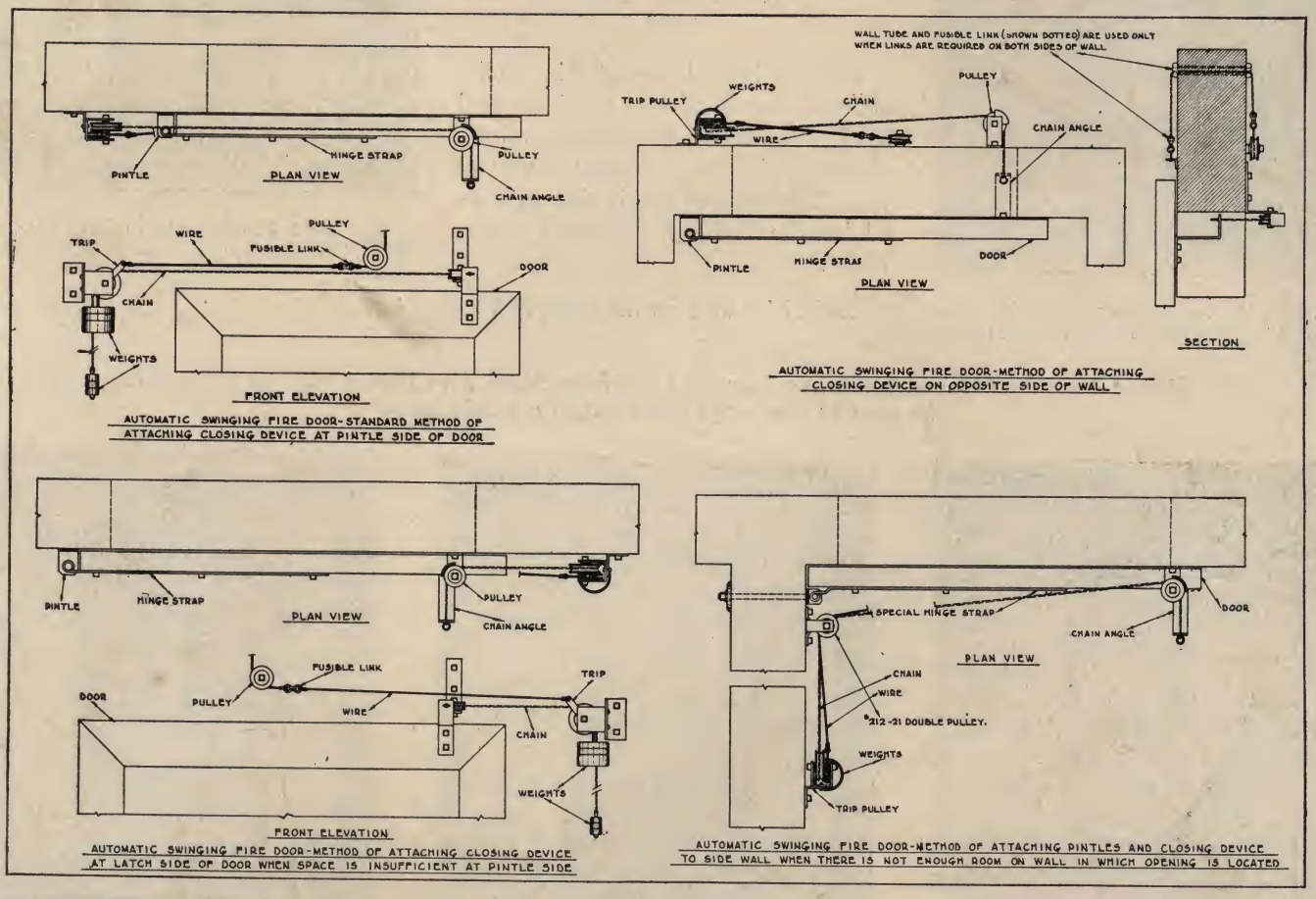
The automatic link and cord arrangement on this hardware extends above the opening to ceiling, and when used with doors on both sides of wall same extends through, so that the fusing of link on either side will cause the doors to close. No. 1643 Door Closer and Check (pages 50-52) may be substituted for weight closing device if desired.

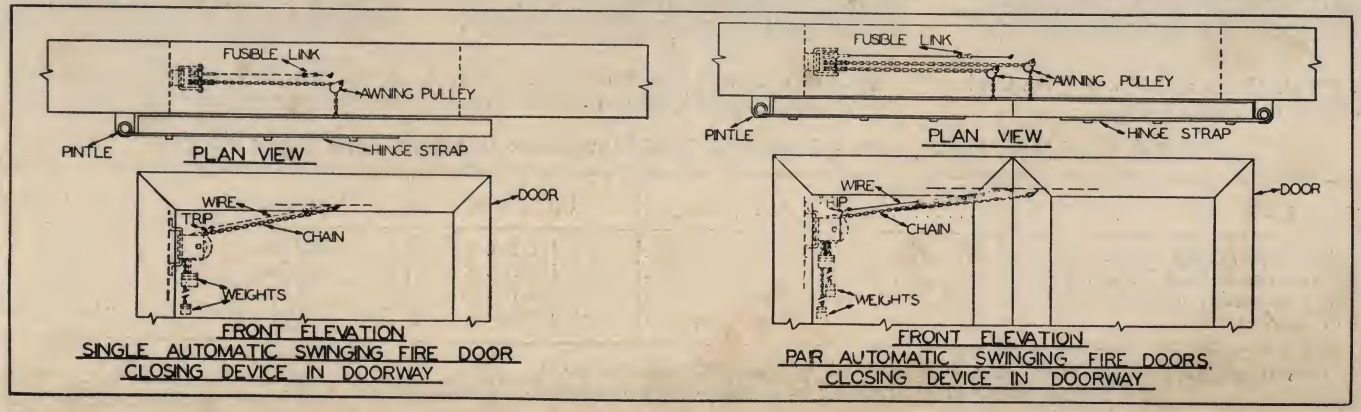
Hardware furnished for lap doors, for either flush doors in brick rabbets, flush doors in rabbeted angle frame, flush doors in angle frame on face of wall or flush doors in channel frame.

If doors are used on both sides of wall, two sets of hardware will be required. Wall bolts are not included, but will be furnished on request at moderate prices if thickness of wall is given.

DIRECTIONS FOR ORDERING: See page 293 and give information asked for.

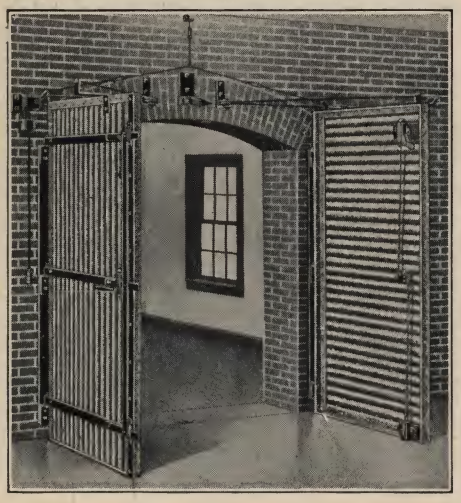
Special Arrangements of Automatic Closing Devices for Swinging Doors





Automatic Labeled Fire Door Hardware for Swinging Doors in Pairs

No. 506-2 for Two-ply (1¾ inch) Tin Clad Doors
No. 506-3 for Three-ply (2½ inch) Tin Clad Doors
No. 1506 for "FyeR-Wall" Sheet Metal Doors
No. 2506 for "FyeR-Ward" Flat Surface Steel Doors



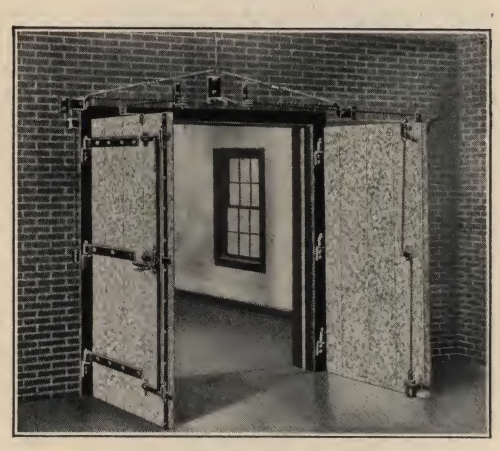
No. 1506 Hardware with "FyeR-Wall" No. 347 or 447 Corrugated Sheet Metal Lap Doors.

Headroom Requirements:
10″ above top of door
(Not opening)

Sidewall Requirements:
11″ on each side of doors

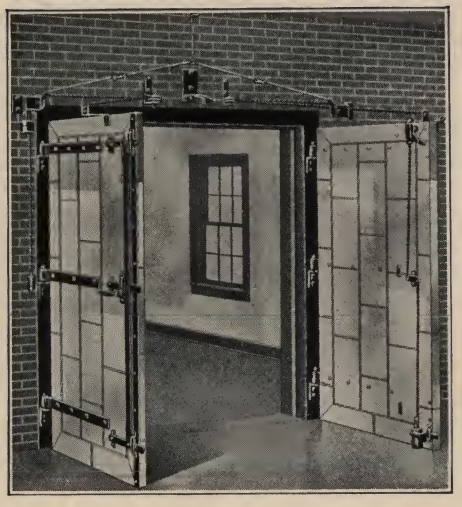
This hardware is included in the list of Fire Door Hardware and inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters and is also approved by the Factory Mutual Laboratories.

Bolt List shown on page 293

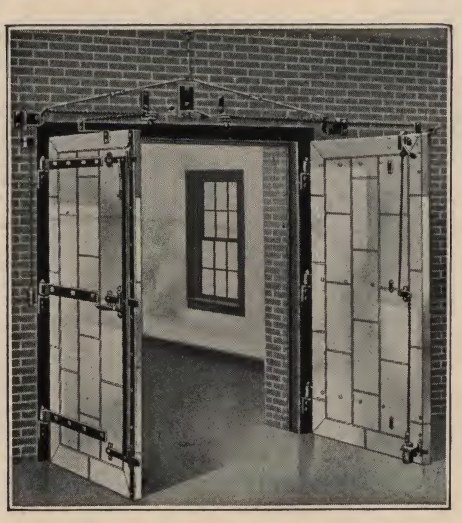


No. 2506 Hardware with No. 647 "FyeR-Ward" Flat Surface Steel Doors flush in channel frame.

Either Tin Clad Corrugated Steel or Flat Surface Steel Fire Doors can be mounted in any of the ways illustrated on this page



No. 506 Hardware with No. 446 Tin Clad Flush Doors in channel frame.



No. 506 Hardware with No. 446 Tin Clad Flush Doors in Angle Frame on Face of Wall.

No. 506 Hardware with No. 446 Tin Clad Flush Doors in Rabbeted Angle Frame.

Weights of Nos. 506-2, 506-3, 1506 and 2506 Hardware for Any Type Door Frame

Height of Doors	Up to 5′ 9″	5′ 10″ to 8′ 9″	8′ 10″ to 10′ 4″
Weight, Complete Sets	166 lbs.	220 lbs.	275 lbs.
*Weight Hardware, Less Automatics	102 lbs.	156 lbs.	211 lbs.
Weight, Automatics only	64 lbs.	64 lbs.	64 lbs.
Kind of Latches	Double	Triple	Quadruple

*No. 1643 Door Closer (pages 50-52) may be substituted for Automatics shown above.
Astragals (3/16″ x 3″) are not included but can be furnished (with screws) when required. Weight per foot, 2 lbs.

Nos. 506, 1506 and 2506 Fire Door Hardware (Cont'd)

For Swinging Doors in Pairs

This hardware is inspected by Underwriters' Laboratories, Inc., under direction of the National Board of Fire Underwriters, and approved by Factory Mutual Laboratories.

The automatic link and cord arrangement of this hardware extends above the opening to ceiling, and when used with doors on both sides of wall same extends through, so that the fusing of link on either side will cause the doors to close. No. 1643 Door Closer and Check (pages 50-52) may be substituted for weight closing device if desired.

Door control mechanism (see page 294, part 306-028) located at top center of opening prevents door with latch from closing before the other door closes, thus assuring that both doors will properly close and latch whether the doors be closed by hand or automatically.

Hardware furnished for flush doors in brick rabbets; flush doors in rabbeted angle frame; flush doors in angle frame on face of wall; flush doors in channel frame; or for lap doors. If doors are used on both sides of wall, two sets are required. Wall bolts are not included in list prices, but will be furnished on request, at moderate prices if thickness of wall is given.

Directions for Ordering

(See pages 288-289)

State: First—Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, mention if fixture can be bolted together and state thickness of wall.

Second—Width and height of opening (mention width first). Do not say doors when you mean openings.

Third—Are doors to lap wall; to be mounted in angle iron frame on the face of the wall, in channel frames or are doors to be mounted in rabbeted angle frames or in brick rabbets? (See illustrations of various types at the bottom of page 299).

Fourth—Thickness of doors, if two-ply tin clad (1¾-inch), three-ply tin clad (2½-inch), "FyeR-Wall" Sheet Metal Doors, or "FyeR-Ward" Flat Surface Steel Doors.

Fifth—Thickness of wall when wall bolts are required.

Sixth—Distance from edge of opening to walls at right angles, if any. State distances from highest points of openings to nearest obstructions overhead.

Seventh—Is opening square or arched top?

This hardware requires 10 inches of headroom above top of door (not opening), 11 inches of side wall space on each side of door. Detail of parts shown on pages 294-295.

Wall Bolt List for Nos. 406-2, 406-3, 1406, 2406, 506-2, 506-3, 1506 and 2506 Fire Door Hardware
Number and length of ¾-inch Bolts required for varying sizes of doors

Bolts are used to fasten:	Door 1′ 5″ to 6′ 2″ wide 4′ 0″ to 5′ 3″ high	Door 1′ 5″ to 5′ 0″ wide 5′ 4″ to 5′ 9″ high	Door 1′ 5″ to 5′ 0″ wide 5′ 10″ to 6′ 3″ high	Door 1′ 5″ to 4′ 0″ wide 6′ 4″ to 7′ 3″ high	Door 6′ 3″ to 8′ 10″ wide 4′ 6″ to 5′ 3″ high	Door 5′ 1″ to 8′ 10″ wide 5′ 4″ to 5′ 9″ high	Door 5′ 1″ to 8′ 10″ wide 5′ 10″ to 6′ 3″ high	Door 4′ 1″ to 8′ 10″ wide 6′ 4″ to 7′ 3″ high	Door 1′ 5″ to 8′ 10″ wide 7′ 4″ to 8′ 3″ high	Door 1′ 5″ to 5′ 0″ wide 8′ 4″ to 8′ 9″ high	Door 5′ 1″ to 8′ 10″ wide 8′ 4″ to 8′ 9″ high	Door 1′ 5″ to 5′ 0″ wide 8′ 10″ to 9′ 3″ high	Door 5′ 1″ to 8′ 10″ wide 8′ 10″ to 9′ 3″ high	Door 1′ 5″ to 8′ 10″ wide 9′ 4″ to 10′ 4″ high	Length of Bolts Required for Sets Installed	
															On One Side of Wall	On Both Sides of Wall
For 406-2, 406-3, 1406 and 2406 Hardware																
406-22-2 Keeper for 2-ply tin clad and "FyeR-Ward" lap doors	2	2	3	3	2	2	3	3	3	3	3	4	4	4	Thickness of wall plus 5½″	Thickness of wall plus 8½″
406-22-3 Keeper for 3-ply tin clad lap doors	2	2	3	3	2	2	3	3	3	3	3	4	4	4	Thickness of wall plus 6½″	Thickness of wall plus 10″
1406-22 Keeper for "FyeR-Wall" sheet metal lap doors	2	3	3	3	2	3	3	3	3	4	4	4	4	4	Thickness of wall plus 6½″	Thickness of wall plus 10½″
406-10 Keeper for 2- or 3-ply tin clad and "FyeR-Ward" doors in brick rabbets	2	2	3	3	2	2	3	3	3	3	3	4	4	4	Thickness of wall plus 3½″	Thickness of wall plus 4″
1406-10 Keeper for "FyeR-Wall" sheet metal doors in brick rabbets	2	3	3	3	2	3	3	3	3	4	4	4	4	4	Thickness of wall plus 3½″	Thickness of wall plus 4½″
406-33 Pintles for all lap doors	*2	*2	*2	*2	3	3	3	3	3	†3	4	†3	4	4	Thickness of wall plus 2½″	Thickness of wall plus 2½″
406-11 Pintles for all doors in brick rabbets	*2	*2	*2	*2	3	3	3	3	3	†3	4	†3	4	4	Thickness of wall plus 2½″	Thickness of wall plus 2½″
Total bolts in 406-2, 406-3 and 2406 sets	4	4	5	5	5	5	6	6	6	6	7	7	8	8		
Total bolts in 1406 sets	***4	**5	**5	**5	5	6	6	6	6	‡7	8	‡7	8	8		
For 506-2, 506-3, 1506 and 2506 Fixtures																
406-33 Pintles for all lap doors	**4	**4	**4	4	6	6	6	6	6	‡6	8	‡6	8	8	Thickness of wall plus 2½″	Thickness of wall plus 2½″
406-11 Pintles for all doors in brick rabbets	**4	**4	**4	4	6	6	6	6	6	‡6	8	‡6	8	8	Thickness of wall plus 2½″	Thickness of wall plus 2½″
Total bolts in 506-2, 506-3, 1506 and 2506 sets	**4	**4	**4	4	6	6	6	6	6	‡6	8	‡6	8	8		

*Requires 3 for "M&E" Fixtures.
**Requires 6 for "M&E" Fixtures.
***Requires 5 for "M&E" Fixtures.
†Requires 4 for "M&E" Fixtures.
‡Requires 8 for "M&E" Fixtures.

Parts for Nos. 406, 1406, 2406, 506, 1506 and 2506 Hardware

Packing List of Parts used on Nos. 406, 1406, 2406, 506, 1506, and 2506 Fire Door Hardware

406-2, 2406	406-3	1406	506-2, 2506	506-3	1506	No.	Description
2	2	2	3	3	3	96	Fusible Links, each
1	1	1	1	1	1	102-41	Rope Angle, each
*	*	*	*	*	*	102-61	Cast Washers (as required) Packed only with lap door fixtures, each
..	..	..	1	1	..	102-72	Bumper Shoe, each
1	1	1	1	1	1	102-90	Chain Tube (only when fixtures are used on both sides of wall), each
1	1	1	1	1	1	102-BW	Bronze Wire, per feet
1	1	1	1	1	1	102-UC	Universal Chain, per foot
2	2	2	3	3	3	102-SH	S-Hook, each
1	1	1	2	2	2	206-020	Weight (3 small) with weight holder, each
1	1	1	2	2	2	206-029	Chain Pulley, each
1	1	1	2	2	2	206-029½	Chain Pulley (for low headroom), each
1	1	1	2	2	2	206-030	Chain Angle, each
1	1	1	..	..	..	206-043	Center Pulley, each
1	1	1	1	1	1	303-ST	C Sash Chain, per foot
..	..	..	1	1	1	306-028	Door Control, each
..	..	..	1	1	1	306-031	Door Control Lifter, each
1	1	1	2	2	2	406-065	Pulley and Trip complete, each
*	*	*	*	*	*	406-61	Washers (as required). Packed only with fixtures for doors in brick rabbets, each
One Multiple Latch furnished with each set of fixtures, Double; Triple; Quadruple; or Quintuple according to height of door. No. 406-2; 506-2; 2406 and 2506 Hardware require 406-1-2 Latches; No. 406-3 and 506-3 require 406-1-3 Latches; No. 1406 and 506 require 1406-1 Latches.							~~Double Latches 30″, 36″, 42″ centers~~ Triple Latches 24″, 27″, 30″, 33″, 36″, 39″ centers Quad. Latches 28″, 30″, 32″, 34″, 38″, 42″ centers Quint. Latches 27″, 28½″, 30″, 31½″, 33″ 34½″, 36″, 37½″ centers
*	*	*	*	*	*	406-4	Pintles for Flush Doors in angle iron frames on the face of the wall or channel frames, per pair
*	*	..	*	*	..	406-5	†Hinge Straps as required (see note), per pair
..	..	*	..	..	*	1406-5	†Hinge Straps as required (see note), per pair
*	*	..	*	*	..	406-6	†Hinge Straps as required, for doors in brick rabbets (see note), per pair
..	..	*	..	..	*	1406-6	†Hinge Straps as required, for doors in brick rabbets (see note), per pair
*	*	*	*	*	*	406-7	Pintle for flush doors in rabbeted frames, per pair
*	*	..	..	..	..	406-8	Keeper for flush doors with angle iron frames on the face of the wall or channel frames, each
..	..	*	..	..	..	1406-8	Keepers for flush doors with angle iron frames on the face of the wall or channel frames, each
*	*	*	..	..	..	406-052	Keepers for doors in rabbeted angle frames
..	..	..	*	*	..	506-051	Keepers for Double, Triple, Quadruple, or Quintuple Latch
..	..	..	..	..	*	1506-051	Keepers for Double, Triple, Quadruple, or Quintuple Latch
One Multiple Keeper furnished with each set of fixtures (double, triple, quadruple or quintuple according to height of doors) for lap and brick rabbeted doorways. **Lap doors; Nos. 406-2 and 2406 require No. 406-22-2 Keepers; No. 406-3 require No. 406-22-3 Keepers; No. 1406 Hardware requires No. 1406-22 Keepers.**							Double Keepers, 30″, 36″, 42″ centers Triple Keepers, 24″, 27″, 30″, 33″, 36″, 39″ centers Quadruple Keepers, 28″, 30″, 32″, 34″, 38″, 42″ centers Quintuple Keepers, 27″, 28½″, 30″, 31½″, 33″, 34½″, 36″, 37½″ centers
Brick Rabbeted Doorways; Nos. 406-2, 406-3, 2406 require No. 406-10 Keepers. No. 1406 requires No. 1406-10 Keepers.							Double Keepers, 30″, 36″, 42″ centers Triple Keepers, 24″, 27″, 30″, 33″, 36″, 39″ centers Quadruple Keepers, 28″, 30″, 32″, 34″, 38″, 42″ centers Quintuple Keepers, 27″, 28½″, 30″, 31½″, 33″, 34½″, 36″, 37½″ centers
One multiple pintle furnished with each set of fixtures (double, triple, quadruple or quintuple according to height of door) for lap and brick rabbeted doorways. **Lap Doors; Nos. 406-2 and 506-2 require pintle No. 406-33-2; No. 406-3, 1406, 506-3 and 1506 require No. 406-33-3 pintle.** **Brick Rabbeted Doorways; Nos. 406-2, 406-3, 2406, 2506, 506-2, 506-3 and 1506 require No. 406-11 pintles.**							Double Pintle, 30″, 36″, 42″ centers Triple Pintle, 24″, 27″, 30″, 33″, 36″, 39″ centers Quadruple Pintle, 28″, 30″, 32″, 34″, 38″, 42″ centers Quintuple Pintle, 27″, 28½″, 30″, 31½″, 33″, 34½″, 36″, 37½″ centers
..	..	*	..	..	*	1406-61	Hinge Washer (one for each hinge), each
..	..	*	..	..	*	1406-62	Hinge Angle (one for each hinge), each
..	..	..	1	..	..	506-044-2	Top and Bottom Bolt for standing door, each
..	..	..	..	1	..	506-044-3	Top and Bottom Bolt for standing door, each
..	..	..	..	..	1	1506-044	Top and Bottom Bolt for standing door, each
..	..	..	1	1	..	506-044	Back Trip, each
..	..	..	1	1	..	506-044	Face Trip (for outside doors only), each
..	..	..	1	1	1	506-045	Keeper for top standing door bolt (partition walls only), each
..	..	..	1	1	1	1506-046	Keeper for bottom standing door bolt, each
..	..	..	1	..	..	506-049-2	Keeper for top standing door bolt (lap doors on outside walls only), each
..	..	..	..	1	1	506-049-3	Keeper for top standing door bolt (lap doors on outside walls only), each
..	..	..	1	1	1	506-050	Keeper for top standing door bolt (flush doors on outside walls only), each
..	..	..	..	..	2	1506-052	Bolt Attachment Plate, each
..	..	..	..	..	1	1506-72	Bumper Shoe, each
1	1	1	2	2	2	606-4	Weight, each
1	2	2	2	4	4	606-EC	Extra Weight, each
..	..	..	1	1	1	706-028	Door Control (for low headroom), each
							Package of Screws and Bolts

*Indicates quantity as required.
†Quantity and length of hinges and pintles depend upon width and height of door.
Hinges made in standard lengths as follows: 18″, 21″, 24″, 27″, 30″, 33″, 36″, 39″, 42″, 45″ and 48″.

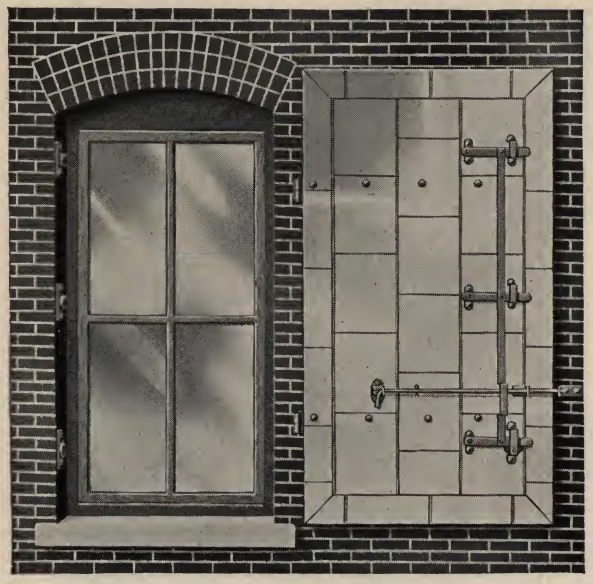
Fire Shutter Hardware

For Single Swinging Shutters

No. 307 for Two-ply (1¾-inch) No. 446 Tin Clad Shutters

No. 1307 for No. 347 or 447 "FyeR-Wall" Sheet Metal Shutters

No. 2307 for No. 647 "FyeR-Ward" Flat Surface Steel Shutters



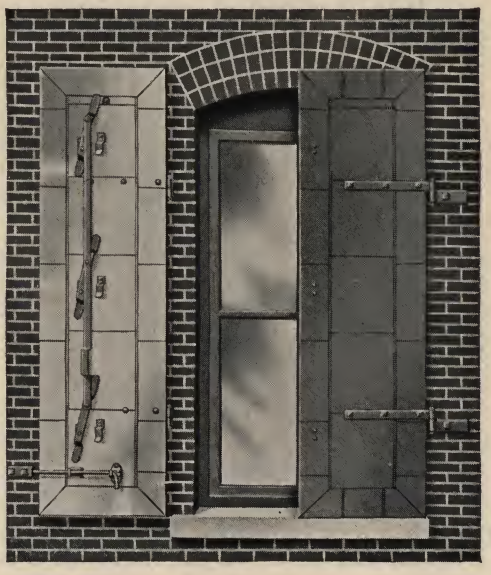
No. 307 Fire Shutter Hardware

For Swinging Shutters in Pairs

No. 407 for Two-ply (1¾-inch) No. 446 Tin Clad Shutters

No. 1407 for No. 347 or 447 "FyeR-Wall" Sheet Metal Shutters

No. 2407 for No. 647 "FyeR-Ward" Flat Surface Steel Shutters



No. 407 Fire Shutter Hardware

Fire shutters are one of the greatest protections against fire that can be applied to a building, and all buildings within reach of a possible fire from other buildings should be equipped with fire shutters. This hardware is designed to meet the requirements of Underwriters, for protecting window openings.

The following weight list includes a set of hardware complete, and all bolts for attaching to shutters.

Wall bolts for pintles will be furnished at a moderate price if thickness of wall is given.

Directions for Ordering

First—State number of openings.

Second—Width and height of opening (mention width first and do not say shutters when you mean openings).

Third—Are shutters to lap wall or to fit flush in masonry openings?

Fourth—Are openings square top or arched top?

Fifth—Are shutters to be two-ply (1¾-inch), Tin Clad "FyeR-Wall" Sheet Metal, or "FyeR-Ward" Flat Surface Steel?

Sixth—Thickness of wall when wall bolts are required.

Seventh—See pages 232 to 239 for R-W Standard Approved and Labeled Tin Clad Shutters and R-W "FyeR-Wall" Sheet Metal Shutters, also "FyeR-Ward" Flat Surface Steel Shutters.

Note: Unless otherwise specified on order, hardware complete will be sent for tin clad shutters 1¾-inch thick. Detail of parts shown on opposite page.

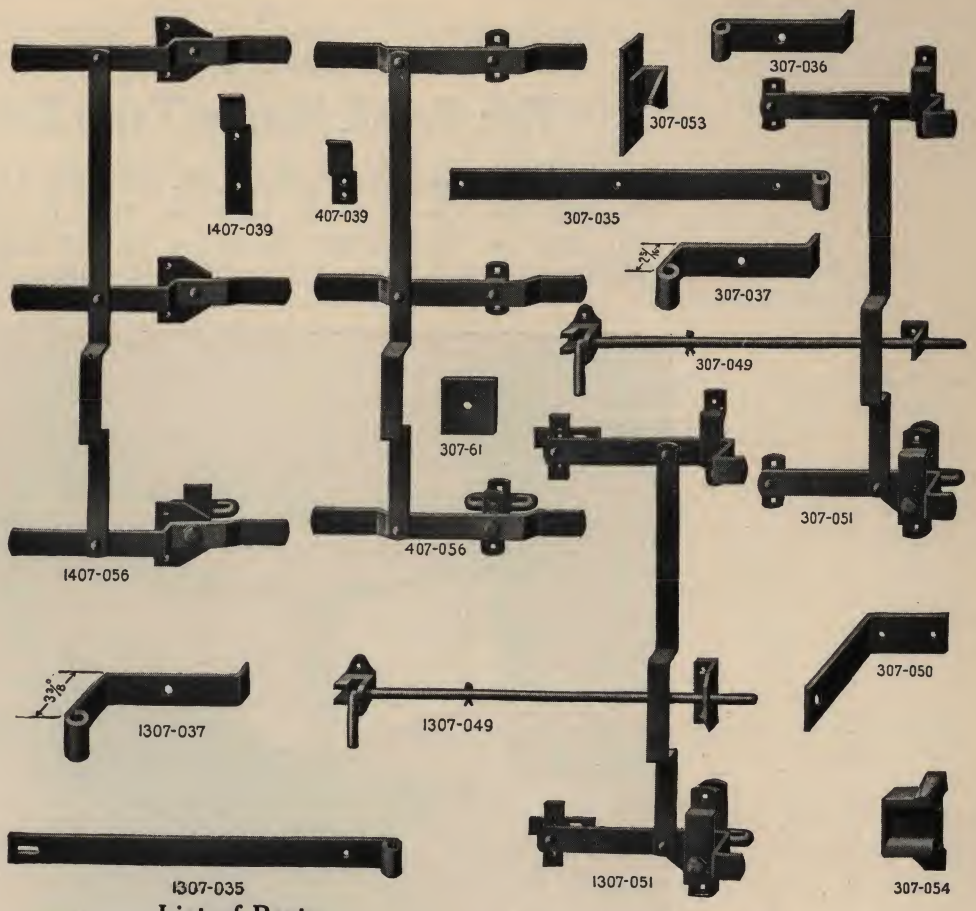
Weight List

	Single		Double	
	307 or 2307	1307	407 or 2407	1407
Fixtures complete, for shutters up to 7 ft. 3 in. high (with double latch), weight per set	60 lbs.	67 lbs.	66 lbs.	72 lbs.
Fixtures complete, for shutters 7 ft. 4 in. to 10 ft. 3 in. high (with triple latch), weight per set	70 lbs.	77 lbs.	85 lbs.	90 lbs.

Note: Underwriters require three hinges on shutters over 7 feet 4 inches in height and to cover three-fourths of the width of each shutter.

Detail of Parts

For Nos. 307, 1307, 2307, 407
1407 and 2407
Swinging Fire Shutter Hardware



List of Parts

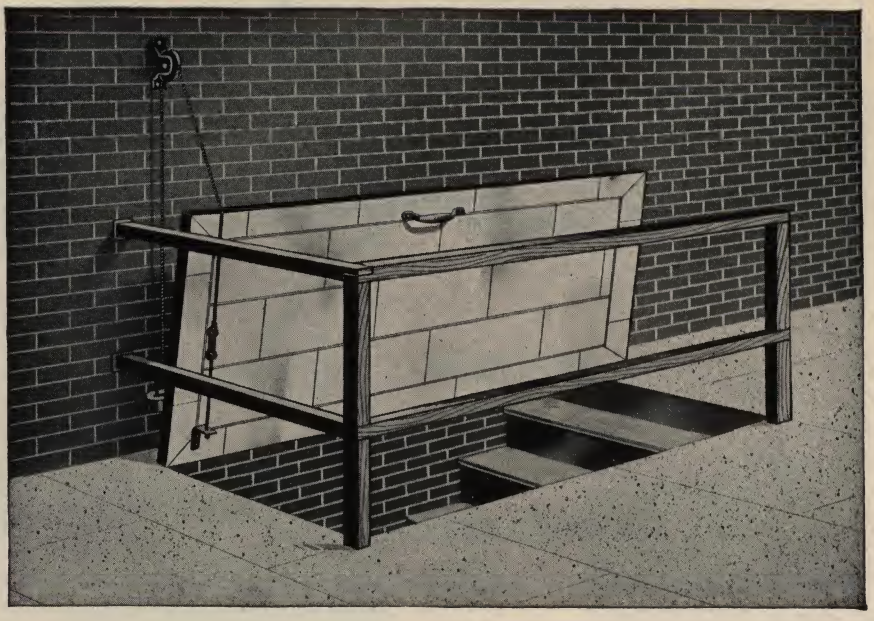
Underwriters require hinges to cover three-fourths the width of shutter. Hinge straps are made of 1¾ x 5/16-inch steel

Number	Description
307-035	Hinge Straps, 18 inches or under, per pair
307-035	Hinge Straps, 24 inches long, per pair
307-035	Hinge Straps, 30 inches long, per pair
307-035	Hinge Straps, 36 inches long, per pair
307-036	Pintle with pintle pin (for flush shutters), per pair
307-037	Pintle with pintle pin (for lap shutters), per pair
307-049	Stay Rod, each
307-050	Stay Rod Keeper, each
307-051	Double Latch, with No. 307-053 or 054 Keepers complete, each
307-052	Triple Latch, with No. 307-053 or 054 Keepers complete, each
307-053	Keeper (for single lap shutter), each
307-054	Keeper (for single flush shutter), each
307-61	Square Steel Washer for pintle bolts, each
407-039	Latch Bar Keeper (double shutter), each
407-055	Double Latch, with No. 407-039 Keeper (double lap or flush shutter) complete, each
407-056	Triple Latch, with No. 407-039 Keeper (double lap or flush shutter) complete, each
1307-035	Hinge Straps, 18 inches or under, per pair
1307-035	Hinge Straps, 24 inches long, per pair
1307-035	Hinge Straps, 30 inches long, per pair
1307-035	Hinge Straps, 36 inches long, per pair
1307-037	Pintle with pintle pin (for lap shutters), per pair
1307-049	Stay Rod, each
1307-051	Double Latch, with No. 307-053 or 054 Keepers complete, each
1307-052	Triple Latch, with No. 307-053 or 054 Keepers complete, each
1407-039	Latch Bar Keeper (double shutter), each
1407-055	Double Latch, with No. 1407-039 Keeper (double lap or flush shutter) complete, each
1407-056	Triple Latch, with No. 1407-039 (double lap or flush shutter) complete, each

Note: Always specify by number and state size of shutter.

Automatic Fire Door Hardware For Small Single Trap Doors

No. 212-2 for Two-ply (1¾ inch) No. 446-2 Tin Clad Doors
No. 212-3 for Three-ply (2½ inch) No. 446-3 Tin Clad Doors
No. 1212 for "FyeR-Wall" No. 347 or No. 447 Sheet Metal Doors
No. 2212 for "FyeR-Ward" No. 647 Flat Surface Steel Doors



This hardware, specified and endorsed by Underwriters, is applicable to trap fire doors. When open, the door is counter balanced by the weight and when link fuses, door closes by gravity. Twenty-one pounds of weight furnished with each set.

Directions for Ordering

State width, height and thickness of door, also material of which same is constructed, and weight.

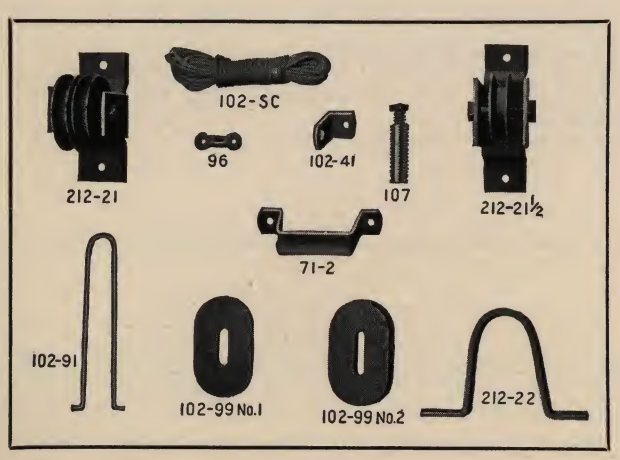
When hinges are desired, give above dimensions and state if same are to be attached to floor or side wall, and in either case the material of which same is constructed.

Weight List

The following weights include a set of hardware complete, consisting of rope pulleys, weights, sash cord and all bolts for attaching hardware to door and wall.

Hinges are not included, but will be furnished at a moderate price if width and thickness of door is given and the material of which same is constructed.

*No. 212, 1212 or 2212 Fixtures complete with No. 212-21 double pulley (less hinges). Weight per set ..... 37 lbs.



List of Parts

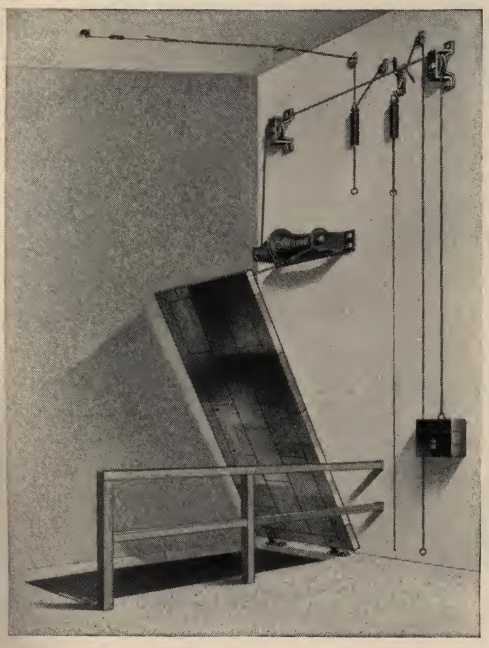
Number	Description
71-2	Steel Handle, each
96	Fusible Link, each
102-41	Rope Angle, each
102-91	Weight Holder, each
102-99-1	Light Weight, 3 pounds, each
102-99-2	Heavy Weight, 9 pounds, each
102-SC	No. 7 Sash Cord, per foot
107	Expansion Bolt, ½ x 5 inches, each
212-21	Double Pulley, each
212-22	Back Stop for Door, each
212-21½	Single Pulley (discontinued)
303-STC	No. 2 Steel Sash Chain, per foot

***Note:** Always specify by number and state size of door.

Automatic Fire Door Hardware

For Large Single Trap Doors

No. 412-2 for Two-ply (1¾-inch) No. 446-2 Tin Clad Doors
No. 412-3 for Three-ply (2½-inch) No. 446-3 Tin Clad Doors
No. 1412 for "FyeR-Wall" Nos. 347 or 447 Sheet Metal Doors
No. 2412 for "FyeR-Ward" No. 647 Flat Surface Steel Doors



This fixture is designed to carefully balance trap doors in any position. If heavy trap doors are mounted in the usual way, without a compensating device, the doors are very hard to operate through some parts of their travel. The double cone shaped drum in this device equalizes the reaction of the weights on the door in all positions.

When the fusible link melts a part of the counterweight is dropped off and the door closes gradually, being retarded by the part of the counterweight which remains attached to the cable. The counter weights equal 35 per cent of the door when simple counterweighted, as shown in illustration, or 70 per cent of weight of door when counterweights are compounded.

Minimum Distance from Floor to Ceiling

Width or Length of Door Parallel To Hinge Straps	Simple Counter-Weight	Compounded Counter-Weight
3 ft.	6′ 6″	4′ 6″
4 ft.	8′ 0″	5′ 3″
5 ft.	9′ 6″	6′ 0″
6 ft.	11′ 0″	6′ 9″
7 ft.	12′ 6″	7′ 6″
8 ft.	14′ 0″	8′ 3″
9 ft.	15′ 6″	9′ 0″
10 ft.	17′ 0″	9′ 9″

Weight, Per Set Less Counterweights

412-2, 412-3, 1412 or 2412 Sets	Less Hinges	80 Pounds

Directions for Ordering

State: Weight, height and thickness of door and also of openings; Are doors tin clad or corrugated sheet metal; Are hinges to be attached parallel to the long side of the door or to the short side of door as illustrated; Distance from floor to ceiling; Are the doors mounted to overlap the floor (as shown in the illustration) or are they set in rabbets flush with the floor; State distance from side of opening (to which door is hinged) to the wall (if there is no wall to which the pulleys can be attached purchaser must provide suitable supports).

Bolts and screws for attaching hardware to door are regularly furnished. If the bolts and screws are wanted for attaching to wall and floor they will be furnished at an extra price if thickness and description of wall and floor is given.

Note: Hinges are not included, but will be furnished at moderate price if width and thickness of door is given and material of which same is constructed.

No. 366 Heavy Square Steel Washer

Diameter of Bolt in Inches	Diameter Hole in Inches	Size, Inches	Thickness, Inches	Weight Per 100
½	9/16	2¼ x 2¼	3/16	25 lbs.
5/8	11/16	3 x 3	¼	50 lbs.
¾	13/16	3½ x 3½	3/8	125 lbs.

Note: Always specify size of bolt. Packed in bulk.

No. 186 Star Drills for Drilling Brick, Concrete and Stone

Self centering cutting edge. Highest grade crucible tool steel. Upset and forged to allow proper degree of clearance on the blades to prevent choking. Every drill guaranteed.

Weight Per Dozen, In Pounds

Length, Inches	Diameter of Cutting Edge										
	¼-inch	5/16-inch	3/8-inch	7/16-inch	½-inch	5/8-inch	¾-inch	7/8-inch	1-inch	1⅛-inch	1¼-inch
12	2	3	4	5	7	9	12	15	21	27	28
18	3	4½	6	7½	10	13½	18	22½	31½	41	42

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